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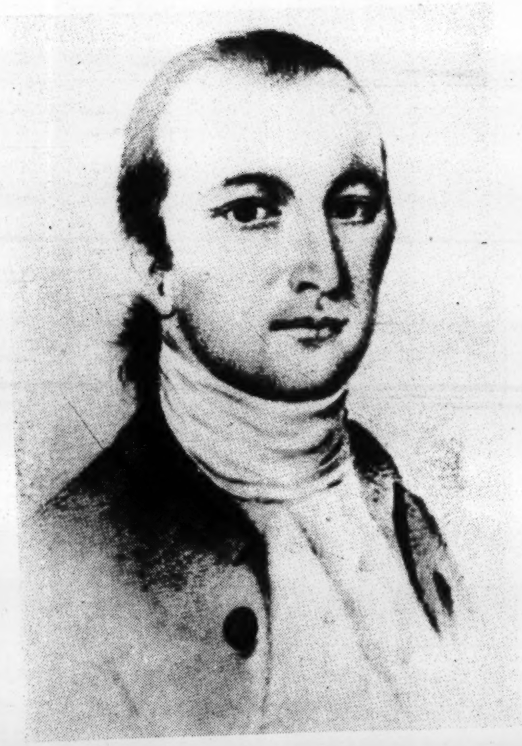

PHILIP TURNER
[1740 1815]

[Willis: Opera Omnia: Genevae, 1676.]

ANNALS OF MEDICAL HISTORY
VOLUME X SPRING, 1928 NUMBER 1

# DR. PHILIP TURNER OF NORWICH, CONNECTICUT*

*By* CHARLES B. GRAVES, M.D.

NEW LONDON, CONN.

THE subject of this paper is so far as I am aware the only surgeon general that the State of Connecticut has produced. This fact with the added consideration that his career as army surgeon extended over three wars and bridged a period of fifty-five years would seem to justify an attempt to fill in so far as possible the blank spaces in the rather shadowy portrait that has come down to us.

Practically all knowledge of him up to the present time is derived from the account in Thatcher[1] (II, 152–3). That account in turn was taken from the columns of the *Medical Intelligencer*, a weekly periodical published in Boston in the 1820's.

Later medical historians such as S. D. Gross (American Medical Biography), J. M. Toner (The Medical Men of the Revolution), and H. E. Brown (Medical Department of the United States Army), have closely followed Thatcher and added little or nothing. Packard and Mumford hardly more than mention him, yet he was a man of mark in his day whose career was an honor to his state and to his country.

The following endeavor to round out his life history has been made possible by access to a considerable mass of unpublished correspondence which I have been privileged to examine through the kindness of Mr. Philip Turner Welles of Norwich, a great-great grandson and namesake of Dr. Turner.

These collected papers cover, with numerous and sometimes wide gaps, the period from 1776 to 1815, the date of Dr. Turner's death. Unfortunately for the completeness of the picture they relate with relatively few exceptions to his military or official activities. The major part of them are copies, in his own handwriting and evidently kept for his own private use, of letters addressed by him to various persons mostly in public life. It was distinctly disappointing to find so few of an intimate personal character, or containing references to the years of his civil practice in Norwich.

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* Read in part at a meeting of the Beaumont Medical Club held at Hartford, Conn., March 11, 1927.

Dr. Turner's handwriting even to the end of his life was remarkably legible. His style is frequently quite elliptic and his mode of expression though punctilious in following the epistolary forms usual in his day, often quaintly frank or blunt. In general his letters show that humorous disregard for exact grammatical construction and for niceties of punctuation and the use of capitals that was so common in his time, even among people far better educated than he.

Dr. Philip Turner was born in Norwich, Connecticut, February 25, 1740, the oldest child of Captain Philip Turner and Mrs. Anne Huntington Adgate, who were married in Norwich, April 24, 1739. Captain Turner was born in Scituate, Massachusetts, June 25, 1715, but early in life moved to Norwich where, according to Miss Caulkins[2] (274), he "soon acquired an enviable popularity among his new associates, performing the duties of constable, selectman and captain of the troop of horses." In 1745 he was made keeper of the town house and arms. He died in 1755 at the early age of thirty-nine.

After the death of his father the son Philip was taken into the family of Dr. Elisha Tracy, one of the leading physicians and citizens of Norwich, and was there brought up like one of his own children. His educational opportunities were meagre, did not in fact extend beyond the schools of his native town. His medical training however, which took place under the tutelage of his foster father, a man with a college education (Yale 1738), marked ability and wide experience, was undoubtedly more thorough than the average.

In 1758 began his military service, in the army against the French in Canada. His name occurs in the list of privates of the 9th Company, Captain John Durkee of Norwich, Third Regiment, Connecticut Troops, Eleazer Fitch Esq. Col.[3] (x, 66). At the end of the muster roll occurs "Fort Edward, Oct. 19, 1758." It seems probable that even in that first campaign his duties were in part at least surgical. This is suggested by a powder horn in Mr. Welles' possession which bears the inscription: "Doct. Philip Turner His Horn—Fort Edwa. Sept. 29, 1758." The failure to add the final "rd" to Edward was due to lack of space at that point. The horn is also strikingly decorated by the engraved likenesses of a surgical saw and an amputating knife, a figure of a sort of griffin, and a British coat of arms. The next year also Philip Turner's name appears on the muster roll of Captain John Durkee's Company[3] (x, 164) in the list of privates as before. Thatcher however states[1] (II, 152) that he was regularly appointed assistant surgeon in 1759.

In 1760, apparently for the first time, he received from the General Assembly a regular appointment. The Connecticut Colonial Records[4] (x, 357) contain the following under the date of March 1760: "This Assembly do appoint . . . David Adams of Canterbury Surgeon, Philip Turner of Norwich Surgeon's Mate in the 4th regiment ordered to be raised in this Colony for the ensuing campaign." Conformable to the above he is listed among the "Regimental Officers," in Colonel Eleazer Fitch's Regiment (4th), as "Philip Turner of Norwich, Surgeon's Mate, March 24 to Dec. 28, 1760"[3] (x, 215). The following year he received a similar appointment in the first Regiment, Gideon Wells of Fairfield being the surgeon[3,4] (x, 237), (XI, 487), and his service extended from April 1, to November 15, 1761.

It is stated in Thatcher that he continued in service till the close of the war in 1763. Though his name does not appear on the muster rolls extant later than 1761, the statement in Thatcher is probably correct. That he reëntered the Service in 1762 is proven by a reference in the Fitch Papers[3] (XVIII, 208) to a letter received by Governor Thomas Fitch, July 13, 1762 from Doctor Turner "who had evidently just returned from camp where he had apparently been serving as Surgeon's Mate. In this letter he declined to return to service for less allowance than a surgeon's pay." In that connection is printed a letter from Governor Fitch to Colonel Nathan Whiting dated Norwalk July 19, 1762 in which he says:

"As there is no Establishment for two surgeons I say nothing further to him," and continues by directing Colonel Whiting to take steps to fill Dr. Turner's place as soon as possible. Whether or not Dr. Turner reconsidered and continued in service through that year does not appear. It would be interesting to know how far afield these campaigns took him. In a letter written late in life there is a reference to the Plains of Abraham and Quebec, which would lead one to infer that he was present at that famous action. At any rate his experience in this old French and Indian war was of great value to him. The writer in Thatcher says of it: "His handsome person and pleasing address soon attracted the attention of the English surgeons, by whom he was treated with much courtesy, and invited to witness many of their capital operations. It was from the information and practice he obtained in this school that he laid the foundation of his future eminence as an operator."

Not long after his return from army service he married, April 7, 1763, Lucy, the oldest daughter of his benefactor and preceptor Dr. Elisha Tracy. Settling in practice in his native town, aided by favoring social connections and the prestige derived from his experience in military service he soon became prominent as a general practitioner and especially as a surgeon. Very little information is at hand with regard to the period following his return from the war up to the breaking out of the revolution, though they were doubtless busy years. He was one of the famous eleven physicians of Norwich and vicinity, who September 27, 1763, memorialized the Connecticut General Assembly for permission to organize and to adopt measures to regulate the practice of medicine in the Colony. In 1773 he was associated with Dr. Jonathan Loomis in an attempt to open a hospital for small-pox inoculation on an island off the Stonington shore. Owing to the violent opposition of the neighboring inhabitants the project was abandoned. Miss Caulkins[2] (359) quotes an item from the Norwich Packet, April 1774: "Dr. Turner has recently extracted the bone of an alewive from the throat of Mr. Ebenezer Lord, where it had been lodged for twenty-five years, and at various times had given him exquisite pain. It was about the size of a brown thread needle and was barbed from end to end."

The breaking out of hostilities in 1775 found Dr. Turner no laggard. It is stated by the writer in Thatcher[1] (2, 153) "His practice and reputation were such that, at the breaking out of the revolutionary war, he was unrivalled as a surgeon in the eastern section of the country. During the first campaign he was the first surgeon of the Connecticut troops before Boston."

At the session of the Connecticut General Assembly, April 26 through May 6, 1775, Philip Turner was appointed surgeon to the 8th Regiment, Samuel Holden Parsons, Colonel[4] (XIV, 430). A footnote to the above however states that Simon Wolcott was surgeon. So whether Dr. Turner accepted the appointment and actually served under Colonel Parsons is doubtful. His name does not appear on the rolls of the "Lexington Alarm List,"[5] nor is he mentioned by Packard[6] (246, *et seq.*), as among those present at Bunker Hill either in a professional or military capacity. Nevertheless, there is no reasonable doubt that he joined the troops before Boston in time to be present at the battle of Bunker Hill. In the "Note on Bunker Hill,"[5] (58) in "Connecticut men in the Revolution" it is stated: "Dr. Philip Turner is mentioned as 'attending wounded after Charlestown Battle.'" Furthermore Dr. Turner himself in letters written later in life repeatedly refers to his having been present and active professionally at Bunker Hill. On July 6 following he was commissioned surgeon to the 8th Regiment Connecticut troops, just raised by order of the Assembly under the command of Colonel Jedidiah Huntington[5] (85). It is stated that this regiment was stationed on the Sound until September 14, when on requisition of Washington it was ordered to the Boston Camps and took post at Roxbury in General Spencer's brigade. Dr. Turner however spent at least part of the summer in service in the hospital at Roxbury as appears from several references to him in letters printed in the Huntington Papers[3] (xx, 230, 231, 232, 235). For example writing to his father from "Roxbury Camp" August 20, 1775, Colonel Huntington says:

> The Hospitals provided at Continental Expense are full of Persons & Distemper, I make other Provision the best I can for my sick doubt not what I & the Doctors lay out for Bedding & Necessaries for them will be refunded, I have only Doctor Turner to administer at present as both his mates are sick but getting better I have persuaded Doctor Waldo of Coventry to stay & assist Doctor Turner until his mates recover upon the promise of using my Endeavors that he has a meet Recompense.

Dr. Turner mentions the fact of his having been with the hospitals both at Cambridge and at Roxbury. He was discharged December 16, and seems not to have reenlisted when his regiment was reorganized with the others before Boston, January 1, 1776. John Waldo of Colchester became surgeon of Colonel Huntington's remodelled regiment which in the following March was transferred to New York. It is presumed that Dr. Turner returned home in December 1775. It is not improbable that even after that he may have spent more or less time with the troops before Boston. In a letter, dated Roxbury Camp, March 1, 1776, Colonel Huntington writes to his father[3] (xx, 271): "I wish my good Friend Doct. Turner could find it in his way to be at Camp next Wednesday or Thursday. he promised he would come down. we have but few so experienced as he is in his Way." This was in view of the probability of an early encounter at Dorchester.

Early in April of 1776 the "General Hospital," under instructions from General Washington to Dr. John Morgan, was ordered transferred to the vicinity of New York. Medicines, stores, bedding and supplies were to be loaded into carts and taken to Norwich, there to await further detailed instructions[7] (15). In that month also Dr. Turner "met the wounded of the squadron of Commodore Hopkins in the action with a British frigate in block Island sound, bro't into New London and attended there" (mss. letter of P. T.). With regard to Dr. Turner's activities during the late spring and early summer of 1776 no information has come to light; but it is probable that he was not slow in joining the army at New York, and was soon in active service. Dr. Turner himself long after this in a letter to President Jefferson, dated November 18, 1805, mentions being, "at New York in our retreat from thence, Harlem, white plains, up and down the north river at the storm of fort Mongomery, the burning of Danbury, fairfield, Norwalk," etc.

According to the article in Thatcher: "In consequence of the battles of Long Island and White Plains a favorable opportunity was afforded him of displaying his professional talents as an operator which gained him the highest character with the army." On August 31, 1776 he was commissioned, by Governor Trumbull, Surgeon to one of the regiments of militia "now in New York." This document has descended in the family and is now in the possession of Mr. Welles. That the rate of pay attached to this appointment was perhaps considered inadequate by Dr. Turner is implied in one of Colonel Huntington's letters[3] (xx, 327). Writing from "Camp Kingsbridge 2$^{d}$ Octo$^{r}$ 1776" he says:

> I am sorry to find that Doctor Turner hasn't a sufficient Inducement to continue in the Army where he is eminently useful & necessary; it is of great Importance to Individuals and the Publick that every Life & Limb should be saved, Doctor Turner is blessed with a natural Insight into Wounds and Dexterity in treating them *peculiar* to himself, Doctor Morgan is well pleased with him and would retain him in Service if he had it in his gift to reward him with as much pay as

he knows he has Reason to expect. I heartily wish our Assembly, who attend with Pleasure and without Parsimony to the Necessities and Convenience of the Army, would provide the Troops with a Physician who is esteemed by us as almost *Essential* to the Service. suppose he saves *one* Limb, that would not be otherways saved, that Limb may save the Publick some Hundreds. You and many others, Members of Assembly, are well acquainted, with Doctor Turner's Character & Manner of Living. he is not aspiring after Wealth, no one doubts he has Right and in Duty ought to stand for a reasonable Reward of his merits and Services.

Within the month the following order which doubtless relieved the situation was passed by the General Assembly: "This Assembly being informed by letter from Doct. Morgan to his Honor the Governor of the necessity of some persons being appointed to take the immediate care of the hospital stores for the use of the Connecticut troops in the Continental service, and also signifying that eight shillings per day would be allowed to such persons as should be thereto appointed, do now appoint Doct$^r$ Philip Turner of Norwich, to be Physician and Surgeon for the Connecticut troops now engaged or to be engaged in the Continental service, and Director of the Hospital Stores for said troops; and so hereby authorize and impower the said Philip Turner to procure and receive all such medical stores as he may judge necessary and use same for the benefit of said troops and to have the direction thereof. And as an inducement to the said Philip Turner to engage in the said service, it is now ordered that the said Philip Turner be allowed in addition to the aforesaid Eight shillings per day four shillings per day; and his Honor the Governor is hereby desired to acquaint him with this appointment and direct him to prepare and with all possible expedition repair to said troops for the execution of said trust"[8] (1, 21).

At the same time he was voted an order upon the treasurer for three hundred pounds "for the use of the hospital for the Connecticut troops."

The earliest dated paper in this collection, November 4, 1776, is a personal letter of instructions to Dr. Turner from the Director General, Dr. John Morgan. Accompanying this is "A Copy of y$^e$ Circular Letter to Y$^e$ Regimental Surgeon, Nov$^r$. 1776." The former, though similar to one printed by Packard[6] (308) addressed to John Warren at Hackensack, is sufficiently different to warrant reproduction. The latter, except for differences in person and place names, is a duplicate of the one quoted by Packard,[6] (306) which also went to Dr. Warren.

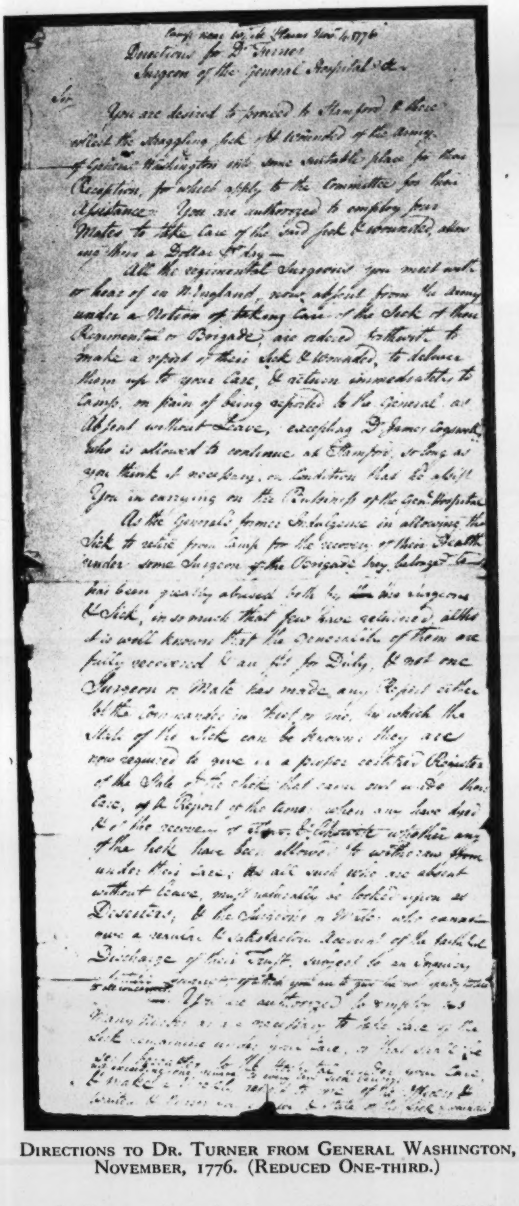
Dated November 10, 1776 is a copy of an order from Dr. Morgan to Colonel Joseph Trumble, Esq., Commanding General to issue supplies to "Dr. Philip Turner Esq.$^R$ Surgeon of the General Hospital for the Sick of Stamford."

The hospital did not remain long at Stamford. The coastal site was deemed too exposed, and it was ordered to be moved to Danbury in accordance with the following vote of the General Assembly in December 1776:

> Resolved by this Assembly, that the stores of medicine etc. now deposited in Stamford under the care of Dr. Philip Turner be removed in whole or in part to the town of Danbury at the said doctor's discretion with the best advice he can obtain both as to the time and manner of such removal, and that the sum of £500.0.0. be advanced out of the public treasury to the said Doct$^r$. Turner etc.[8] (1, 122).

The actual move however was probably not made till early the next spring. None of the histories, so far as I know, mention this early removal of the hospital from Stamford to Danbury, or the fact that the largest and most important military general hospital east of the Hudson River was located at the latter place and was the headquarters of the surgeon general of the Eastern Department during nearly the whole of the war.

Near the beginning of 1777 Dr. Morgan was removed from the office of Director General under circumstances of great injustice. Though he received the unanimous and heartiest support of the surgeons of the general hospital, and though he was later completely vindicated, he never recovered from this blow which permanently embittered his life, and he died in 1789, a broken and disappointed man. His famous "Vindication," called by Packard[6] (266) "by far the most interesting literary relic of the Revolution from a medical point of view" came out later in 1777. As illustrating the cordial relations existing between Morgan and the general hospital surgeons a letter from Dr. Morgan to Dr. Turner written a few months after the former's dismissal is of interest here:



Camp near the White Plains Nov. 4. 1776

Directions for Dr. Turner
Surgeon of the General Hospital &c.

Sir

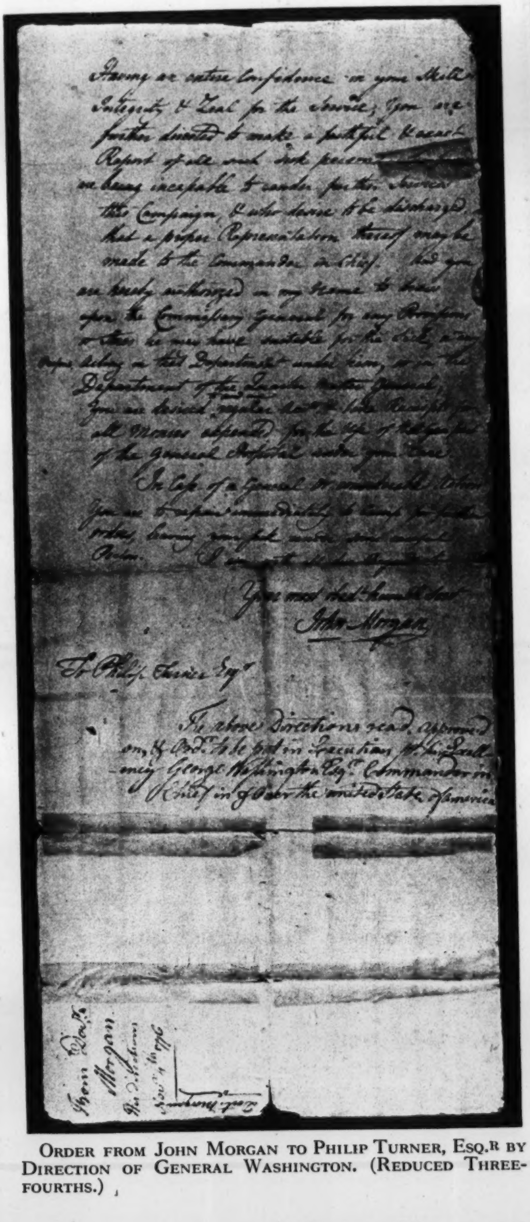
You are desired to proceed to Stamford & there collect the straggling Sick & Wounded of the Army of General Washington into some suitable place for their Reception, for which apply to the Committee for their Assistance. You are authorized to employ four Mates to take care of the said Sick & wounded, allowing them a Dollar per day—

All the regimental Surgeons you meet with or hear of in N. England, now absent from the Army under a Notion of taking Care of the Sick of their Regiments or Brigade, are ordered forthwith to make a report of their Sick & Wounded, to deliver them up to your Care, & return immediately to Camp, on pain of being reported to the General as Absent without Leave, excepting Dr. James Cogswell, who is allowed to continue at Stamford, so long as you think it necessary, on Condition that he assist You in carrying on the Business of the Genl. Hospital.

As the General's former Indulgence in allowing the Sick to retire from Camp for the recovery of their Health under some Surgeon of the Brigade they belonged to, has been greatly abused both by the Surgeons & Sick, in so much that few have returned, altho it is well known that the generality of them are fully recovered & are fit for Duty, & not one Surgeon or Mate has made any Report either to the Commander in Chief or me, by which the State of the Sick can be known: they are now required to give in a proper certified Register of the State of the Sick that came out under their Care, & a Report of the time when any have died or of the recovery of them, & [illegible] whether any of the Sick have been allowed to withdraw from under their Care; & all such who are absent without leave, must naturally be looked upon as Deserters, & the Surgeons or Mates who cannot give a regular & satisfactory Account of the faithful Discharge of their Trust, subject to an Enquiry, [illegible]

You are authorized to employ as many Nurses as are necessary to take care of the Sick remaining under your Care, [illegible]

DIRECTIONS TO DR. TURNER FROM GENERAL WASHINGTON, NOVEMBER, 1776. (REDUCED ONE-THIRD.)



Having an entire Confidence in your Skill, Integrity & Zeal for the Service; You are further directed to make a faithful & exact Report of all such Sick persons [illegible] as being incapable to render further Service this Campaign, & who desire to be discharged, that a proper Representation thereof may be made to the Commander in Chief. And you are hereby authorized in my Name to draw upon the Commissary General for any Provisions or Stores he may have suitable for the Sick, & any [illegible] being in that Department under him, or on the Department of the Quarter Master General. You are desired regularly to take Receipts for all Monies expended for the Use of the [illegible] of the General Hospital under your Care.

In Case of a General or considerable Action You are to repair immediately to Camp for further orders, [illegible] Orders. I am [illegible]

Your most obedt. humble Servt.
John Morgan

To Philip Turner Esqr.

The above Directions read, approved on, & Ordd. to be put in Execution by His Excellency George Washington Esqr. Commander in Chief in & over the united States of America

From Doctr. Morgan
His Directions
Novr. 4th 1776

ORDER FROM JOHN MORGAN TO PHILIP TURNER, ESQ.R BY DIRECTION OF GENERAL WASHINGTON. (REDUCED THREE-FOURTHS.)

Boston, May 9, 1777

My dear Friend,

Permit me to introduce to you My worthy Friend, the Bearer, ——Rose Esqr. of Charles Town South Carolina. He is one of those good men whom I most esteem and Honour. Having

Bussiness at Norwich as a Merchant, and one of the first Class, & being a Stranger in that part of the world, I was glad to have such a Friend there as you to whom I can with the greatest freedom recommend Him. I have wrote by him to Mr. Leffingwell, and would take that Liberty with my good friend, Col. Huntington, if I knew of his being there, I hope however that he will want for no Introduction to anyone at Norwich that can contribute to make the place agreeable to Him as a gentlemen, or that may be useful to Him as a Man of Bussiness.

I congratulate my Country on your appointment to the Rank & Station of Surgeon General, as I see it mentioned in the News Papers.

I enclose you a Copy of my reply to Dr. Storey's answer as he called it to my Letter to Him—My Vindication is in the Press. When it comes out I shall send you a Copy of that also.

Pray make my best respects to your good Lady; & believe me to be, as I am, with great Affection, D$^{r}$. S$^{r}$,

Your Affectionate humble Serv$^{t}$.
John Morgan

Early in the spring of 1777, adopting a plan proposed by William Shippen Jr. with the aid and advice of John Cochran, Congress made a reorganization of the General Hospital and, April 11, elected a new set of officers. As a result of the campaigns of the previous year Dr. Turner had gained great distinction as a surgeon, so much so that according to Brown[7] (39): "To the position of Director General, Doctor Philip Turner of Connecticut, was at first nominated and elected; but before adjournment a reconsideration was moved, and it was urged with great propriety that the author of the plan had claims, not only of great distinction in his profession, but of previous service, which were superior to those of others. Accordingly a new election being held, Dr. William Shippen received the unanimous vote of all the thirteen states." At the same time Dr. Turner received the appointment of Surgeon General of the Hospital, Eastern Department.

From that time on he had general charge of the hospitals east of the Hudson, with headquarters at Danbury, where was situated a large general hospital plant with several wards. According to the History of Danbury[11] (100): "The hospital itself was a one-storied building with a large garret in its steep roof. The first floor was divided into four rooms; the garret was of one room." It is said to have stood on what is now called Park Avenue at the junction of Pleasant Street. The British force which attacked and burned Danbury on April 26, 1777, to its credit be it said, left the hospital undisturbed. While making Danbury his base it was one of Dr. Turner's chief duties to actively supervise also the other smaller hospitals, making the circuit on horseback as often as necessary. In one of his letters to the Director General he says: "My Circuit Visiting Y$^{e}$ Different Hospitals is four Hundred miles or upwards," truly a wearisome task. Later his circuit mileage was cut down about half, but there were other sources of worry such as the item of expense as appears from the following letter:

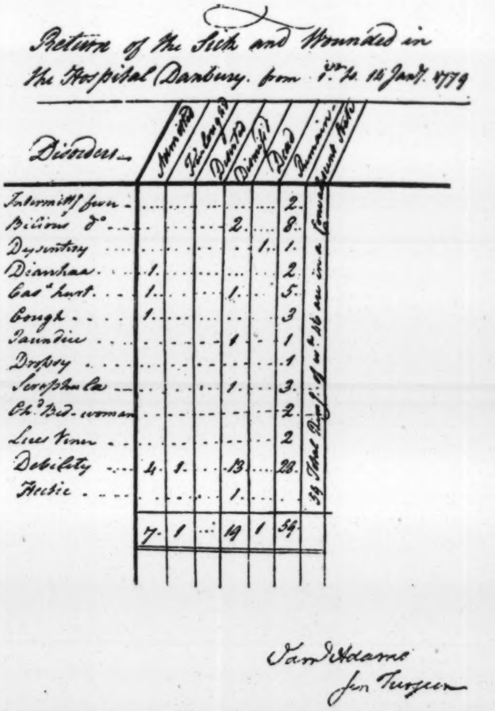
Danbury 15th March 1779

Hon. Sir,

In obedience to your late directions I shall attend at the different hospitals established in this quarter (Eastward). We have closed at Hartford and have moved the utencles, Medicines & stores to New London Doc$^{r}$. Adams to the charge of the Hospital there and two mates & other necessary officers, the Hospitals you have directed me to attend are at the distance of two hundred miles or more in Circuit, travelling is very expensive. How am I to be supplied with horses and other necessary expenses, to perform this duty in rotation, is it my own expense or the publics. I should think I ought to know by Circumstances that may happen in this Quarter, on surprise or otherwise when its necessary to put myself or the public at y$^{e}$ expense of visiting any Particular Hospital, as occasion may require, your Hon$^{r}$. know best. Our troops are detached and sent to different places on or near the sea coast requesting our assistance at almost every place. However I shall endeavor to make all easy—I send enclosed the returns for the month of Feb$^{r}$. a list of our Medical gentlemen and the present state of the Hospital at this place.

I am with all due respect your
Hon$^{rs}$. Most Obed't Serv't
P. T.
Doc$^{r}$. Shippen Director

The surgeons of these smaller subsidiary hospitals made to Dr. Turner at Danbury weekly or bi-weekly returns, and their reports were then used by him in making up his own returns to the Director General. A few of these returns are included among these Turner papers, and are of considerable interest. They chiefly concern the years 1778 and 1779, and comprise returns from Fishkill, Springfield, Hartford and the various wards at Danbury. There were hospitals also at Pound Ridge, Bedford, Providence, Boston, Newport and New London, but no returns from those places are included. The general form is much the same for all of these returns. Examples follow:



Return of the Sick and Wounded in the Hospital (Danbury. from 1st to 16 Jan.y 1779

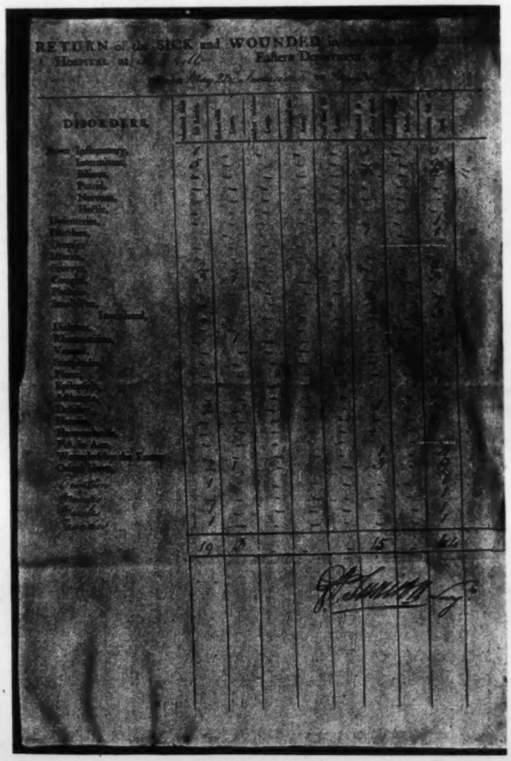
| Disorders | Admitted | [illegible] | Deserted | Dismiss'd | Dead | Remain: | [illegible] |
|---|---|---|---|---|---|---|---|
| Intermitt. fever | | | | | | 2 | 59 Total Rem.g of wh 36 are in a Convalescent |
| Bilious Do | | | | 2 | | 8 | |
| Dysentery | | | | | 1 | 1 | |
| Diarrhoea | 1 | | | | | 2 | |
| Cas.l hurt | 1 | | | 1 | | 5 | |
| Cough | 1 | | | | | 3 | |
| Jaundice | | | | 1 | | 1 | |
| Dropsy | | | | | | 1 | |
| Scrophula | | | | 1 | | 3 | |
| Ch.d Bed-woman | | | | | | 2 | |
| Lues Venerea | | | | | | 2 | |
| Debility | 4 | 1 | | 13 | | 28 | |
| Hectic | | | | 1 | | | |
| | 7 | 1 | | 19 | 1 | 59 | |

Sam.l Adams
Jun Surgeon

From the Danbury Hospital of 1779. (Reduced One-half.)

Most of these were signed by the surgeon in charge, Chas. Pyncheon at Springfield, G. H. Tunison at Fishkill, J. Bartlett, T. Fanning, S. Holmes, E. Belcher, and Samuel Adams at Danbury. The deaths were chiefly from putrid and bilious fevers, dysentery and "debility." This last seems to have been a favorite diagnosis, as in one of the Danbury returns in January 1779 out of 36 patients remaining sick 28 had "debility." Another diagnosis appearing in one of Dr. Pyncheon's returns. "Home sick & low spirited," is full of pathetic suggestion.

The general reports, compiled and rendered by Dr. Turner contain no list of "Disorders" but show admissions, discharges etc. giving the figures for the various hospitals. For example in the return for September and October 1778 there were in all 1152 admissions, of which however a considerable number are probably transfers to Danbury from other hospitals. At the end of the period 412 were still in hospital. For the months of July and August 1779 there were 251 admissions with 255 remaining in hospitals at the close.



"Returns" from the Military Hospital at Fishkill. (Reduced One-third.)

All the medical historians of this period, Packard, Mumford, Brown, etc. emphasize the fact that conditions in the various hospitals of the continental army were often most distressing. Shortage, frequently extreme and unavoidable, in many essentials, such as medicines, surgical instruments and dressings, fuel, bedding, and certain kinds of foods made the lot of the hospital patient anything but a happy one. Such being the case the long list of drugs and other medical and surgical supplies requisitioned by Dr. Turner of the Deputy Director General, Dr. Isaac Foster, strikes one as rather grimly humorous. The list of upwards of a hundred distinct drugs is interesting as showing what was thought of value then. Besides the old stand-bys such as calomel, castor oil, sulphur and cream of tartar, nitre, etc., there are many obsolete and forgotten remedies. Who can tell offhand what Minium is, or Rad Torment, Sem Fanugra, Nuc Moschat, Comfrey, Jerusalem Oak, or Salep?

In this connection a long letter to Dr. Turner from William Eustis is of much interest. It is dated December 19, 1778, when Eustis was senior surgeon at the Danbury hospital.

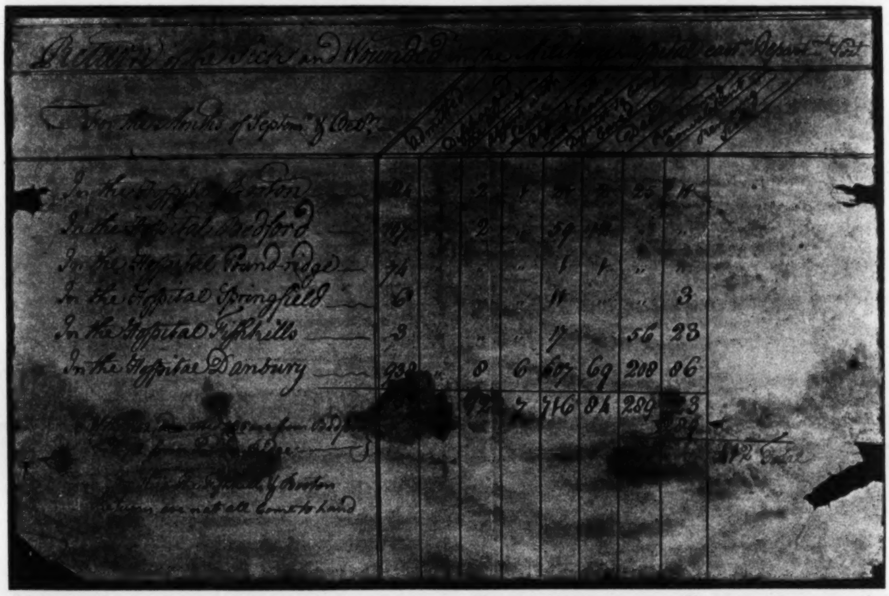
Some Regulations necessary to be adopted with respect to the General Hospital in Danbury in order to make the patients comfortable and to do them that justice to which they are intitled, and which Congress expects they receive.

1. If the Barracks are to receive sick for the winter, it is absolutely necessary that they be made tight either by partitions, ceiling or the erection of stoves to make them tolerably warm and comfortable.

2. Either that a small convenient building be erected on the hill, or that some quarters be procured near the hospital, where the matron shall reside to make the necessary drinks, gruels etc. and where a steward may lodge, as it is his duty to be constantly about the hospital.

3. That, as Captain Berrien has the general business of the department to attend to and it cannot therefore be expected from him to attend to the minutia of a particular hospital, there be an assistant commissary appointed, whose duty it shall be to supply the necessary articles from the general magazine; and being furnished with money for the purpose to purchase vegetables and such other articles as shall be judged necessary by the Senior Surgeon of the hospital.

4. That when every necessary is thus provided, the steward shall receive daily from the said assistant commissary the provision for the patients etc. attend constantly in and about the

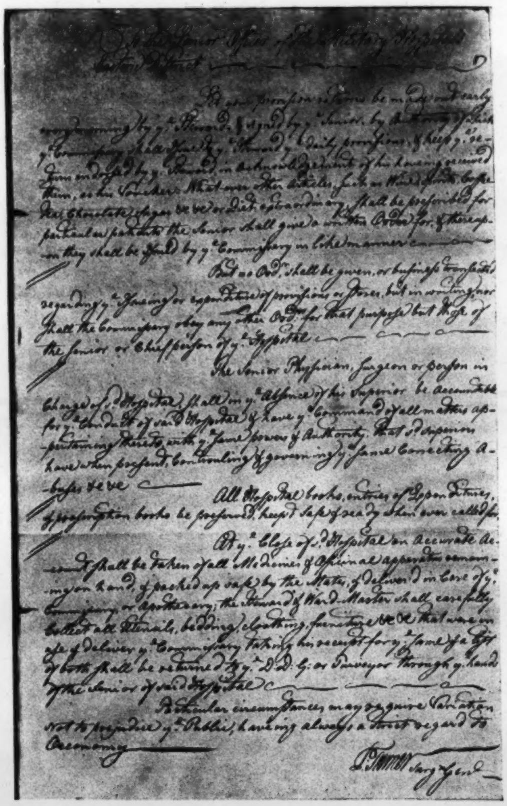


"RETURN" LIST FROM THE MILITARY HOSPITAL OF THE EASTERN DEPARTMENT. (REDUCED ONE-THIRD.)

hospital of which he is the overseer, but more particularly at meal times.

5. That a matron be immediately appointed whose duty it shall be to superintend the cookery, to see that the nurses do their duty and that suitable diet and drinks be administered to the sickest patients.

6. The prescribing surgeon will order a particular diet for every patient. The mates will mark on the diet table the particular diet of every patient, and deliver the matron a lists of the wine and other drinks prescribed for any of her patients.



To the Senior Officer of the Military Hospitals [illegible] Eastern District

Let your provision returns be [illegible] and early [illegible] by ye. Steward & signed by ye. Senior. by [illegible] ye Commissary shall furnish ye. Steward ye daily provisions, & keep ye. re[illegible] endorsed by ye. Steward in acknowledgement of his having received them, as his vouchers. What ever other articles such as Wine, Spirits, Coffee, Tea, Chocolate, Sugar &c &c or diet extraordinary shall be prescribed for particular patients the Senior shall give a written Order for, & thereupon they shall be issued by ye. Commissary in like manner.

But no Ordr. shall be given, or business transacted regarding ye. issuing or expenditure of provisions or Stores, but in writing, nor shall the Commissary obey any other Ordrs. for that purpose but those of the Senior or Chief person of ye. Hospital

The Senior Physician, Surgeon or person in charge of sd. Hospital, shall in ye. absence of his Superior be accountable for ye. conduct of said Hospital & have ye. Command of all matters appertaining thereto, with ye. same power & Authority that sd. Superior have when present, controuling & governing ye. same correcting abuses &c &c

All Hospital books, entries of Expenditures, & prescription books be preserved, keept safe & ready when ever called for.

At ye. close of sd. Hospital an accurate account shall be taken of all Medicines & Officinal apparatus remaining on hand, & packed up safe by the Mate, & deliver'd in care of ye. Commissary or Apothecary; the Steward & Ward-Master shall carefully collect all Utensils, bedding, clothing, furniture &c &c that were in use & deliver ye. Commissary taking his receipt for ye. same & a list of both shall be returned to ye. D.D.G. or Purveyor through ye. hands of the Senior of said Hospital

Particular circumstances may require Variation not to prejudice ye. Public, having always a strict regard to Oeconomy

P. Turner Surg Genl

P. Turner's Directions to the Senior Officer of All Military Hospitals of the Eastern District. (Reduced Three-fourths.)

The necessity of some regulations similar to these within mentioned will appear when it is considered how much the patients in Danbury have suffered for want of a just distribution of proper diet and drinks; and particularly of vegetables to the sick and convalescent. Indeed the exhibition of medicines however well judged, avails but little, and is sometimes injurious, unless attended with such drinks and diet as are proper and at such times and seasons as the patient can receive them.

On the present plan every patient has a certain allowance of bread, meat, rice and molasses, which are cooked by the person appointed for the purpose; at certain times in the day this provision is exhibited, and if the patients have an inclination to eat of it 'tis well; if they have no inclination 'tis a chance if any thing else is offered them until the next meal, which they may have as little disposition for as the first: indeed the prescribing surgeon can receive from the Commissary store as much tea, sugar, coffee etc. as he pleases: these articles are given to the care of the orderly man, and if the orderly men chance to be possessed of honesty and humanity, the patients for whom they are prescribed get them: but this is running a needless risque, and giving unnecessary opportunity to embezzle; for if there were some faithful humane person to whom these articles might be intrusted; they would be made up properly and exhibited to the patients as their several situations required.

It is an opinion which I imbibed early in the war and which experience has since invariably strengthened that the sick in our hospitals suffer greatly in this particular. Nothing more discourages the Surgeon than to hazard his reputation in prescriptions on patients badly supplied with some of the common necessaries of life, void of cleanliness, and without those great auxiliaries to medicine, nursing and attendance, without whose assistance omnis labor est vana.

It affects one very disagreeably, and if humanity is not out of the question it will be called forth and exercised; to go into the Hospital on the hill in Danbury and to see the situation of those unhappy people whose fortune it is to be sent there; frequently destitute of living unless taken from the fences (and then you frequently hear complaints from the owners) without vegetables, often without straw, and not clean as they would be were people appointed to keep them so; and the most ill patients not supplied with drinks and diet, suitable to their exigencies, private soldiers who are in common the orderlys and nurses cannot be depended on, and indeed ought not on so important an occassion on which depends the life of many a brave soldier.

The inferior officers in the commisarial line and the mater of the hospital may have a given quantum allowed them daily which may be received by a general order for that purpose which quantum may be determined by the Director or Surgeon general: but for the hospital consumption no order in my opinion ought to be considered as a sufficient voucher but that of the Senior Surgeon of the Hospital.

This done and the ward master performing faithfully his duty, the wards will be kept in decent order every necessary supplied that the country affords and the patients attended to punctually and faithfully.

With respect to the issuing of medicines ought they not to be drawn and receipted for by the Senior of the Department.

These are sentiments which have occurred to me on considering the situation of the hospitals in Danbury, and I think no man can consistent with humanity and his duty to the public remain in charge of said hospitals unless some capital alterations are made in the management thereof. The present tho'ts are crude and imperfect, as such they are submitted to your consideration by yr humble Servant

William Eustis,
Senior Surgeon.

P. S. I have conversed with Doctor Foster on the occasion, and he is willing to make any appointment of necessary officers which you will request in writing.

To Philip Turner Esq.
Surgeon General East. Dept.
General Hospital Danbury Dec. 19.

That these suggestions were not lost upon Dr. Turner is shown in a copy of "Directions for y^e^ Senior Officer at y^e^ Different Hospitals," without date, which covers most of the points made by Dr. Eustis, and in several of the letters containing instructions to his subordinate surgeons.

Late in 1778 a hospital was established in Hartford as appears from the letter following:

Doc^r^. Hosmer Surgeon of the Gen^l^. Hospital
Sir

You are desired to proceed to Hartford & there Collect the Sick & wounded under y^e^ Command of Maj^r^. Gen^l^. Putman and all the straggling sick of the Continental Army into some Suitable place for their reception for which apply to y^e^ Gen^l^. for Assistance & Orders for Large warm & Comfortable Houses for their accomodation. You are authorized to employ an assistant Commiss. for the Duties assigned him by y^e^. late regulations of y^e^. Hospitals & Employ as many Nurses & Orderly men as are Necessary to take the best care of the sick. Having an active confidence in your skill, Integrity & Zeal for y^e^. service you are further directed to make a faithful & exact report of all y^e^. sick & wounded to me Weekly, (the Number of Officers, Waiters & Nurses employed) you are desired to see the regular Acct^s^. are keept by y^e^. Assistant Commiss. & take receipts for all monies expended for y^e^. use of that part of the Gen^l^. Hospital under your Care till the arrival of Doc^r^. Eustis or until further orders

I am with all due regard
Your most Ob^t^. Serv^t^.
P. T.

Danbury 16th Nov^r^. 1778

To this same Dr. Timothy Hosmer he gave the following July a certificate, citing him as one "who has served in Gen^l^. Hospital near two years & now at his own request is discharged, for his Assiduity and Good Services, in Behalf of y^e^. Public I return him most hearty thanks."

A paper endorsed: "Directions to Doc^r^. Adams & Eustis" though undated belongs to near the close of the year 1778.

Gentlemen

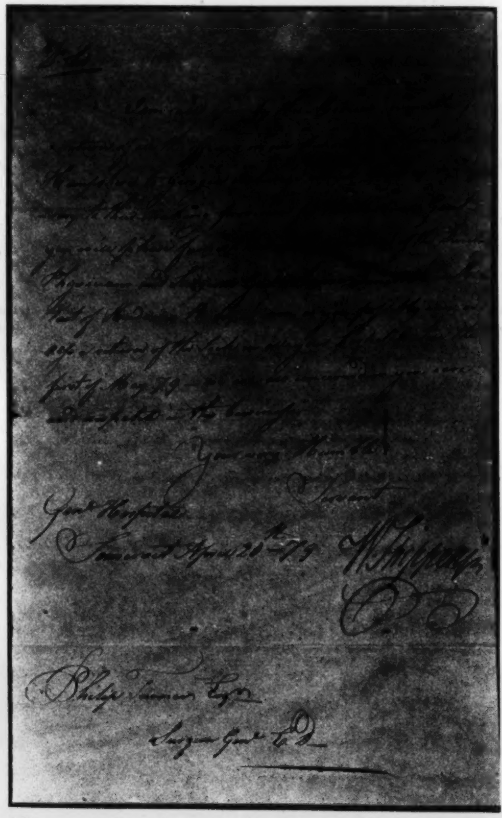
I expect to set out for Hartford, tomorrow Morning to see y^e^. Hospital there. I wish you to take Charge of our affairs here Ordering & Conducting them, as you think best until I return, or till further advice. A new Register to be made out, The returns most punctually attended too, & closed Weekly forwarded to me by safe Conveyance or by Post.

He continues by outlining a plan to have them transfer to Fishkill to relieve the surgeons of the middle department at that hospital releasing the latter for service farther south if agreeable to them.

The Hartford hospital seems to have been quite transient. In fact the following March in a letter to the Director General already quoted Dr. Turner announced its closing. Another letter undated but evidently written about the same time has the following reference to conditions at New London:

At y$^{e}$ Post of New London there is a large Brigade of Militia under y$^{e}$. Command of Gen$^{l}$. Tyler & a Garrison on both sides at y$^{e}$. Entrance of y$^{e}$. River a Continental frigate & sundry Armed Vessells. Gen$^{l}$. Tyler has wrote me repeatedly & desires that they be supply$^{d}$. & attended Medically from y$^{e}$ Gen$^{l}$. Hospital. your directions in regard to y$^{e}$. matter, how far we are to attend y$^{e}$. Militia when on command at any particular Station, will

Greatly oblige your Hon$^{rs}$
Most Obedient
H. Servent
P. T.



A Letter to Philip Turner, Esq.,$^{R}$ Surgeon General, 1779. (Reduced Three-quarters.)

There are three short letters from General Tyler at New London bearing upon this matter and dated in August and September of that year. From these it appears that a Dr. Jewett had been secured to act as surgeon there. He was in all probability David H. Jewett, a practitioner of the neighboring town of Montville, who in the late 1780's was concerned with the operation of a smallpox inoculation hospital in that town.

An official communication from the Director General William Shippen under date of April 20, 1779 calls at the instance of the Medical Committee of Congress for returns of all the officers of the Hospital East of Hudson River, with a return of the sick in the various hospitals. It is here reproduced.

Another letter containing directions to Dr. Eustis falls in the year 1779:

Dear Sir

You will proceed forthwith to May$^{r}$. Gen$^{l}$. Heaths Headquarters at or near y$^{e}$. Highland with D$^{r}$. Vinal of Gardner to your Assistance you will Ord$^{r}$. a Waggon with two able Horses to Attend you with every kind of Chyrurgical Apparatus, Instruments, Bandages, old Linnen &c &c. Such Quantities of Medicines as Necessary in Case of Action and Call on Capt. Berian for such sums of moneys & refreshments as equal to Support a Tour of this kind when you arrive there wait on the Gen$^{l}$. Directiam, make punctual weekly reports of your Medical Attendance, keep Accurate Acct$^{s}$. of the expenditures of Moneys etc that at y$^{e}$. close of y$^{e}$. Tour there may be a Settlement.

Dear Sir I wish you Success and
Subscribe myself your
Sincere Friend and
Humble Serv$^{t}$.

Doc$^{r}$. Eustis P. Turner

A lengthy letter from Dr. Eneas Munson of New Haven, dating from April 1778, had to do with supplying cathartic salts to the hospital, which seems to have been a "side line" of Dr. Munson. He had between three and four hundred weight of salts which he had bought under encouragement of Dr. Foster, deputy Director General of the Eastern Department, with a view to supplying the hospital. He had had however a falling out with Dr. Foster, "a little bickering between us," and now he understands a cheaper grade from another source has been offered and is being considered. He regards his own claim as a prior one under the circumstances, but offers to sell his Salts at cost. In future he engages to supply salts as cheap or cheaper than anyone else. He goes into some details of manufacture to prove the superior quality of his product. In closing he asks Dr. Turner "to direct in my behalf."

The following letter to Dr. Samuel Adams at Newport is of more than usual interest.

Providence 16 April 1780

Dear Doc.

I arrived here last evening much fatigued with a Lame & feeble Horse, or I should have waited on you at Newport. I am very unhappy not to see you. I understand by Doc$^r$. Fanning & Robertson that there has been some difficulties & inquiries in regard to the Issueing of Hospital provisions which if attended to by you will be very easy settled. I waited on Governer Bowen on y$^e$. Occasion he is disposed to hear you on the matter & appears friendly, the Governer & Council have been informed that Mr. Brindly's conduct has not been so good as we could wish, & are determined to inquire further after it. I wish you to wait on Governer Bowen when you will be able to give him satisfaction, there will be no Difficulty—If nothing turns up more in y$^e$. appearance of public affairs, you will by y$^e$. first of May close our Hospital in this state, & leave Medical attendance with ye Regimental surgeons, we have no call here worth Hospital Expense, reduce your Officers as fast as possible make them acc$^t$. for their trust, y$^e$. Ward-master for Blankets, Beding &c &c y$^e$. Steward for provisions, & every kind of Hospital furniture utencils &c &c Collect all, & Carefully pack-up and return to this place. Bowen our Apothecary wishes to leave y$^e$. service he will pack up y$^e$. Medicines in y$^e$. best manner for moving if we have occasion, & it will be best that all our affairs be pack't in y$^e$. same manner, be careful in closing that every thing be secured, Hospital Books, prescriptions Ditto &c &c &c forward on y$^e$. returns as soon, & let me hear from you the first oppertunity. I am Dear sir your friend & Humble Serv.$^t$

P. Turner

The service at Newport was not closed at once however, as appears from a letter from Dr. John De La Mater written from Boston on August 5 following. As it goes into some detail in the matter of supplies and service it seems worth quoting.

Boston Aug. 5 1780

Sir

Doctor Foster's Ill state of Health has Obliged him to make a Journey to the Eastward. he has desired me to Inform you that he is in Hourly expectation of a sum of Moneys arriving from Philadelphia; as soon as it arrives he has Ordered me to Purchase such articles as will be Immediately wanting, and to repair to New Port, & New London, and give you all the assistance that lays in my power. Mr. Bright is still here and cant go forward for the Want of Money to defray his travelling expenses. I have made out to Collect a Small Supply of Tea, chocolate, loaf & Brown Sugar on Credit, which shall be sent forward to Doctor Adams at Tivertown as soon as the Quartermaster can furnish a team. I have Called upon him three times today, & urged the Necessity of having the stores sent forward. he has promised me his Assistance as soon as it lays in his power. I hope you will do me the Justise to believe, that as soon as the money arrives, No time shall be lost. I am Sir with due Respect

Your Very Humble Servant
John De La Mater
Ass't. D.

Philip Turner Esq.

P. S. With Respect to Medicines, Bandages etc. I have informed Doctor Adams that there is a large supply in the packages at Providence, and have requested him to order some careful Person that he can confide in, to select out such articles as may be wanting for Immediate Use.

John De La Mater

As early as the beginning of 1780 there had been a decided falling off in the amount of work demanded of the hospital staff especially in New England. Coincidently came rumors of impending reorganisation and curtailment in the medical department. Dr. Turner was well aware of this and on February 3, 1780 addressed a letter to General Washington as follows:

Military Hospital, Danbury 3$^{rd}$. Feb$^{ry}$. 1780

Your Excellency

Doubtless remembers, not from any particular oppertunity ever with your Excellency, but by hear-say, that I were at y^e. Hospitals Cambridge, Roxbury, New York &c &c. I have served ever since y^e. War; in y^e present Establishment of y^e. Gen^l. Hospital. Congress Hon^d. me with an appointment as Surgeon Gen^l. to s^d. Hospital East^n. Department, in that Charactor have served to this day, weary & almost worn out with the Conduct & management of Hospital Affairs; there is a strife among the leading Gentlemen in opposition to each other, which makes difficulties, hard-thoughts & strivings, these things are intirely wrong & very Troublesome, there ought to be that harmony & friendship, perhaps among this set of Gentlemen more then any other, high time & I think a very proper time, that our System be purged & the publick better served; the Medical department is too large, too Expensive & ought to be Curtailed, our Numbers are more then are Needed our Armies & Hospitals are healthy. I hand your Excellency a plan for a New Establishment; which I sent M^r. Sherman some months ago he lay^d it before one of y^e. Medical Committee who highly approved of it, if adopted by Congress. Your Observation on said plan, & your aid to bring it about, in my Opinion will greatly serve y^e. Public as well as Hon^r. your Excellencies

Most Obedient
Humble Serv^t.
P. Turner.

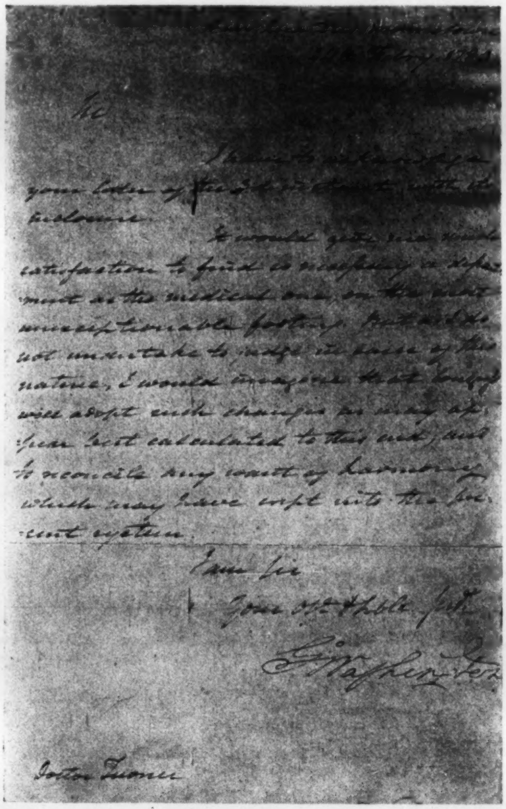
His Excellency
George Washington Esq^r.

Washington however saw in this no occasion for him to butt in, as appears from his reply.

In this letter to Washington Dr. Turner begins to show a tendency which increased with age to criticize the management of the medical department and especially the character and ability of the younger men coming in.

The same month a letter from Roger Sherman, Congressman from Connecticut, at Philadelphia, mentions the appointment by Congress of three inspectors to make the necessary reformations and retrenchments in the General Hospital medical department of the army.

There are in this collection two short letters from Colonel William Ledyard, commanding officer at New London. The first dated December 19, 1780 concerns the removal to the hospital of some sick prisoners and asks directions as to their reception. The other is as follows:



Sir

I have to acknowledge your letter of the [illegible] with the inclosure.

It would give me much satisfaction to find so necessary a department as the medical one on the most unexceptionable footing. But as I do not undertake to judge in cases of this nature, I would imagine that Congress will adopt such changes as may appear best calculated to this end, and to reconcile any want of harmony which may have crept into the present system.

I am Sir
Your Mo^t. Hble Ser^t.
G^o. Washington

Doctor Turner

LETTER FROM GEORGE WASHINGTON TO DOCTOR TURNER, 1780. (REDUCED THREE-FIFTHS.)

New London 15th Jany 1781

Dear Sir

I have been some time expecting to have had the pleasure of seeing you at New London, should be glad to se you soon on two Accounts and more. One is to give some directions respecting the prisoners now here Sicke another is to beg the favour of you to call and se a daughter of mine which has been sicke a long while and is now very low, as soon as you can make consistant will thanke you to call at our House which will be gratefully acknowlidged by Your Most Ob't. Serv't.

Wm. Ledyard

Doct. Turner

These letters have a melancholy interest from the fact that they were written only a few months before Colonel Ledyard's tragic death at the battle of Groton Heights.

Finally by bills passed on September 30, October 6 and 7, 1780 Congress accomplished the curtailment and reorganization of the whole medical establishment of the army. This legislation provided for: One Director of Military Hospitals, three Chief hospital physicians who shall be also Surgeons, One Chief Physician who shall be also Surgeon to each separate army, and fifteen Hospital Physicians who shall also be Surgeons, etc.[7] (53). Among the latter was Dr. Turner.

He seems to have keenly resented this change in status. In a letter to General Dearborn, August 3, 1803, he says: "I was on the new arrangement Oct. 7th 1780, not having my rank and standing as heretofore reduced and deranged."

It is to be said however that he was not alone in this derangement. Some of his ablest associates in the general hospital such as William Eustis and John Warren were put upon the same footing. Dr. Turner did not however leave the service at once, but as he says: "the circumstances of Hospital affairs were such that I continued in active Service till the 13th of June 81."

June 1, 1781 in a letter to Dr. John Cochran, then Director General, he signified his desire to retire from active service. In October of that year he received from Dr. Cochran a certified statement of his services and the friendly and sympathetic letter which follows:

Camp Peekskill October 22nd 1781

Dear Sir

I was favored with yours, but not in time to answer it by the return of the Post, as I was then at New Winsor, and was obliged to wait until I went to camp, to obtain an authenticated copy of the Resolve of Congress for Depreciation, which I here inclose, with a certificate of your services, all which I hope will be satisfactory and enable you to obtain what you are so justly entitled to; for surely, if a state can be so far under the influence of satan as to defraud those who have made the sacrifices which you, and many others of our Department have done to save them; they deserve neither the Protection of Heaven nor the assistance of those upon Earth, but to be bound in everlasting chains, which may God in his infinite Judgement load them with, whenever they attempt it. I heartily wish you success and am dear Sir

Your most humble servant
John Cochran

Dr. Philip Turner

After his retirement from the army Dr. Turner returned to Norwich and resumed practice with an assured position as the leading surgeon of Eastern Connecticut if not of the state. Some bits of contemporaneous testimony as to his surgical skill and reputation have come down to us. The article in Thatcher[1] (II, 153) has the following, which has been repeated substantially by all who have written of him since: "Dr. Shippen did him the honor to say that neither in Europe nor in America had he ever seen an operator that excelled him. In about twenty operations of lithotomy, it is said that all but two cases were perfectly successful."

General Jedidiah Huntington has already been quoted as stating: "Doctor Turner is blessed with a natural insight into wounds and a dexterity in handling them peculiar to himself." Miss Caulkins is authority for the statement: "The credit has been awarded him of being the first surgeon in America that performed the operation of tying the femoral artery[2] (636)."

Dr. Russell[10] 1892 (219) quotes a letter from Alexander Wolcott dated January 4, 1782 to Rev. Joseph Perry of East Winsor, the last sentence of which is: "If you are desirous of Counsel and advice from the faculty further than what you have already obtained Doctr. Turner of Norwich is the most Eminent in Complaints of your kind." The tentative diagnosis was vesical stone.

Dr. Turner's fame rested not alone upon his skill as a practitioner. As a teacher also he was in high repute.

Dr. Ashbel Woodward in his valuable

account of the Early Physicians of Norwich,[10] 1862 (168) has this to say:

> As early as 1785, when there were but two medical schools in the whole country, Drs. Philip Turner and Philemon Tracy issued proposals for the delivery of a series of lectures to students on "Anatomy, Phisic, Surgery, etc." As additional incentives to induce the "rising sons of Aesculapius" to improve the facilities proffered to them, they tendered the free use of a "complete library of ancient and modern authors," together with "the advantage of being present at capital operations, dissections etc." The prospectus goes on to state, that "Every attention will be paid by the subscribers to render their lectures both useful and pleasing, their constant endeavors will be to facilitate the instruction, direct with propriety the judgment, correct the errors, and increase the knowledge of the pupils in their study.

Farther on he states (ibid. 179): "During the period of his civil practice many students sought his instructions. The recommendation of the teacher was esteemed by his pupils a sufficient guarantee of success." He is said also to have given lectures or talks on military surgery to the members of the New London County Medical Society.

Dr. Turner's field was by no means circumscribed by the boundaries of Eastern Connecticut. Miss Caulkins' Statement that: "His skill as a surgical operator was so well understood that he was often summoned to manage critical cases, not only from points far back in the country, but from New York and Philadelphia," is in some measure at least borne out by three papers in this collection having to do with a professional trip which he was called upon to make to Charleston, South Carolina. The call came through the suggestion and advice of Dr. David Olyphant who, it will be recalled, was one of the most distindistinguished medical men of the south, and Deputy Director General of the Southern Department of the General Hospital during the Revolutionary war. There are copies of two letters from Dr. Turner to Dr. Olyphant, dated September 7 and 12, 1792, the first of which I will give in full.

> Norwich 7th Sept. 1792
>
> Dear Sir
>
> I have to acknowledge your politeness in correspondence, of ye 30th ult which came to hand last evening, a very sudden and unexpected request. I most sensibly feel myself under every kind of Obligation to serve you and Mr. Ward, which summons my attention to ye subject. It appears to me were I to undertake a tour of that sort, I ought to have something (in hand) direct from Mr. Ward in case he should cease or any accident happen, before I arrive there, I might be destitute, not knowing where to apply, This letter to you on ye subject of your friendly advice, continued by way of immediate answer will
>
> greatly Oblige Dear Sir  
> Your affectionate friend  
> & H. Serv't  
> P. T.
>
> Its late in ye season if I conclude to go I shall write you particulars immediately  
> P. T.  
> Doc$^{r}$. S. Olyphant

In the second he announces his intention to leave as soon as possible for Charleston, sailing from New York. There is also Dr. Turner's "Memorandum" of the trip. It is interesting as far as it goes and perhaps worth quoting, but how one wishes he had used up some part of that long return trip in jotting down the various happenings by the way.

> I Left Home ye 18th Sept. 1792, for Charleston So. Carolina, Arrived at New York, Thursday Evening, continued there till Octr. 1st—when I embarked on Board ye good ship Augusta, after being at sea, for six days, landed at Charleston, Sunday evening all well, God be praised, paying all expenditures, remained in Cash (on hand) forty Eight dollrs . . .
>
> Monday morning after Brakfast Complimented by Mr. Ward, with several Bank Notes to ye amount Three Hundred Dollrs, . . . 12th Octr. my Receipt to Mr. Ward for ye Three Hundred Dollrs, and Sixty pounds Currency of this State (So. Carolina) on Acct, 13 operated on Mr. Ward and Closed a Letter to my Lady with four Bank Notes of ye United States, One No. 2479, for One Hundred dollrs. One No. 2325, for Ditto, One No. 2300 for fifty

dolls and One No. 1051, for ten dollrs in a Letter to Capt. Sheffield 18th Operated on Mr. John Christan Smith and extracted ye stone . . . 29th Oct$^{r}$. Rec'd of Mr. Ward 300 dolls Bank Notes of ye United States . . . Nov$^{r}$. 1 sailed for Home on board ye ship Deleware by ye way of Philadelphia Arrived the 12th Instant at ye Expense of 34 dollrs.

Sometime in 1800 Dr. Turner left Norwich and betook himself to New York. The reasons leading to such a radical change lay as usually stated, in his advancing years, he had then turned sixty, and the increasing wear and tear of a large country practice. It was reasonable to expect that a city practice would be at once less arduous and more remunerative. Dr. Turner himself gives another quite amusing reason in a letter to President Jefferson December 28, 1801. He says: "I have left my native home, domestic happiness, and an extensive practice of Physic and Surgery to get away from the bitter, envious and mischievous Clergy of Connecticut, who I have been publickly abused by, all on acco$^{t}$. of Electioneering. I have resided in N. York for twelve months past where I would wish to continue and move my family." Probably not long after this he did move his family, and for a time at least they lived at 45 Murray Street.

Of Philip Turner's life in New York, the last fifteen years of his life, the usual account tells little, and that little is vague and far from accurate. This correspondence on the other hand contains a large amount of material bearing upon that period which adds new facts, clears up uncertain points and throws a flood of light especially upon the official or military side of his life. These later years, though less important and fruitful than his earlier ones, are yet full of interest, and but for lack of time it would be worth while to follow them through in some detail. As it is I can only point out the principal high spots as revealed to us in these letters. He seems to have entered at once upon private practice which according to the writer in Thatcher soon became "respectable." Two or three of the letters however contain expressions implying that the income from that source fell short of what was expected and needed. This whole mass of correspondence contains few letters, mostly short and unimportant, having to do with his civil practice or private life.

The lure of military service was again strong upon him and within a year of his settling in New York he was taking steps to secure an appointment in the army. According to the loose statement of the standard account he, was almost immediately appointed surgeon to the staff of the United States Army. As a matter of fact it was very far from being so quick and easy. By the Act of March 16, 1802, provision was made for the appointment of garrison or post surgeons, and under that act Dr. Turner was among those appointed to the position of surgeon's mate. Nearly seven years more elapsed however before he was assigned to a post in spite of his frequent and urgent appeals to the President and to high officials of the war department.

In the meantime, in fact since shortly after the close of the war he had been in a sea of trouble on account of his unsettled claims for back pay. First was his claim against his native state for an allowance based on depreciation of the currency, which he made the subject of the following memorial to the General Assembly:

To the Honorable General Assembly of the State of Connecticut now setting in Hartford.

The Memorial of Philip Turner humbly sheweth, that on ye 11th April 1777 the Honble The Congress appointed your memorialist Surgeon General of the Hospitals of the United States in the Eastern Department with a pay of five dollars p.$^{r}$ day & six Rations of Provisions, which appointment your memorialist cheerfully accepted and served in that department with faithfullness and fidelity until ye 13th June 1781. That in this time after ye full direction of the said Hospitals were committed to your memorialist on the 17 he applied himself besides ye other duties of his office to reform ye abuses, retrench ye expenses and reduce ye extravagancies which had crept into that department. and to bring it into better rules of Oeconomy, by which ye publick expenditures were considerably reduced; for ye truth and reality of this, your memorialist begs leave to refer your Hon$^{rs}$. to the Honble Mr. Sherman who was a member of Congress and the Honble Mr. Huntington who was president a Considerable part of ye time. That in May 1781 your memorialist made application to this Honble Assembly to make good his wages by makeing up ye depreciation on ye same principles and in the same manner as had been done for ye Officers of ye Line from this State, but not being at that time furnished with any act of Congrees pointing directly to his particular Case, the Assembly granted your memorialist allowance for depreciation at ye rate of sixteen shillings p.$^{r}$ day only in lieu of 30 which was his Established pay. Since that time your memorialist has received resolves of Congress of ye 11th and 13th of June 1781 which intitles him to his allowance for depreciation upon his whole Established pay and recommending to this State to settle ye same which he now presents to your Hon$^{rs}$. And as there is due to your memorialist a Considerable balance for Rations not received and other Allowances which were promised him for age etc, which he is ready to relinquish on ye adjustment of ye depreciation of pay, there is no other Officer belonging to his State, continued on ye late Arrangement of ye Hospital but your memorialist, included in the above said resolves, and as your memorialist is well informed that ye Officers of like rank with him in all ye other States are settled with, in full, for their whole depreciation.

Your memorialist therefore relying on the Justice of the Legislature of the State to which he belongs, begs leave once more to make application to this Honble Assembly and Humbly prays your Hon$^{rs}$. to take his singular case into your wise Consideration and Order and direct that allowance be made to your memorialist for depreciation on the 14 p.$^{r}$ day which he has not received of his Established wages while in service, & that ye same may be secured to him in ye same manner as security is given to other Officers from this State, or in such way as to your Hon$^{rs}$. may seem best, and Your
Hon$^{rs}$. memorialist as in duty bound shall ever
pray
P. Turner
Hartford 23rd May 1782

Its subsequent fate I do not know but it was probably disallowed.

Second and much more important was his claim against the general government for pay due him for his services during the war. A large number of papers, some of them of great interest relate to this matter. For a considerable number of years he devoted his best efforts to pressing this just claim in every quarter which could offer the least hope of assistance. Among the most serious obstacles were the question as to his exact status at the time of his retirement from service, involving the rate of pay, and the statute of limitations which seemed insuperable. Nevertheless by a more or less continuous rapid fire discharge of letters to the President, to the Secretaries of War and the Treasury, to prominent military leaders and influential members of Congress, by memorials to Congress, and by the aid of good friends like William Eustis, John Warren, General Dearborn and others he finally won out.

As a fair sample of one of his appeals I may quote a few sentences from his letter to President Jefferson dated November 18, 1805:

> I served them as a satisfactory officer from the beginning of our late war with Great Britain to the end, attending their sick and wounded brewing my hands with corruption and blood, at the first action of Bunker-Hill, the wounded of the Squadron of commodore Hopkins in the action with a British frigate in block Island sound, bro't into New London and attended there, at New York in our retreat from thence, Harlem, White plains, up and down the north river, at the storm of fort Mongomery, the burning of Danbury, fairfield, Norwalk, New London, Groton, and monmouth New Jersey, all these places I were at, and everywhere else my assistance was solicited and courted, always ready to serve them, at all seasons of the year, marching for 30, or 40, miles of a cold winters night to attack fort independence, suffering for a number of days beyond measure, with cold and hunger; all these things I went through, the fatigue of the war, unpaid, barr'd by the act of limitation.

And again: "there was not a Surgeon more generally called upon in all cases, or that did one half the duty, during the war, an active practical art, discharged faithfully," etc.

In this connection also the certificate of Drs. Eustis and Warren is perhaps worth quoting.

> Boston April 23rd. 1804
>
> We the subscribers having been contemporaries in the public service with Doc$^{r}$. Philip Turner do hereby certify that the facts and statements herein contained are just and true according to the best of our knowledge and belief, and in our opinion he is entitled to all the pay and Emoluments of a Hospital physician and surgeon
>
> William Eustis
> A true copy John Warren

At last on April 22, 1808 Congress passed a special act in his favor providing for a settlement of his claim on the same basis as in the case of other members of the General Hospital.

Less than a year after this came notice of his assignment to active service dating from February 7, 1809. He was ordered "to attend the troops on Ellis's or Bedlow's Island, at the rate of compensation of surgeon's mate." The rate of pay was then $30.00 per month with an allowance of $12.00 per month for rations, and $6.00 for forage for one horse. A letter received about this time from his old friend and companion at arms, William Eustis, must have cheered him on his way:

> Washington, War Department
> April 27$^{th}$. 1809
>
> My old friend,
>
> I have it very seldom in my power to answer or even to acknowledge the receipt of letters of a private nature. Yours have been received and the contents of them recur to my mind at intervals in which business of greater importance ceases to press. From the present aspect of our public affairs it is not probable that the medical department will be enlarged. Still I shall bear you in my recollection. Indeed it is impossible that I should forget those with whom I was associated in the revolutionary war, who were my companions & who served with honor.
>
> I am with great regard
> Your friend & servant
> W. Eustis
>
> Dr. Philip Turner

Only a short time previous to this Eustis had received the appointment as Secretary of War in the cabinet of President Madison.

This appointment of Dr. Turner was the beginning of his third term of service in the medical department of the army, which continued without interruption through the war of 1812 and until his death in 1815.

In November, 1809 he was transferred to Fort Columbus on Governor's Island and at the same time his duties much increased. In a letter to Dr. Eustis, November 4 of that year, he mentions finding great confusion there and supplies very low. From this time on, except for two or three short interruptions due to his temporary assignment to the care of the troops in the city, Fort Columbus continued to be his headquarters until the end. He begins his letter of September 29, 1811 to William Eustis: "I remain the same steady old man at public duty every day."

Nevertheless his fighting days were by no means over. As a matter of fact judging by these papers the latter part of his life was one long battle to secure what he believed to be his rightful dues. There must have been other and more cheerful aspects, but we can only imagine them. At the time of the passage of the act of April 22, 1808 allowing his claim for back pay, in his joy at the favorable settlement of the long controversy Dr. Turner had signed a discharge in full of all claims against the United States growing out of his services during the Revolutionary war. He soon learned his mistake, for, contrary to his understanding of the terms of settlement, the treasury officials held that interest on the principal sum was not included. Thus he was no sooner free from one trouble than he was thrown into the midst of another. With characteristic spirit he at once took up the cudgels again in defense of his rights. This was the beginning of another fight which he carried on in his accustomed manner with great intensity for several years, and in fact never entirely abandoned. Indeed forty years or more later it was taken up by his heirs led by his grandson John T. Wait of Norwich, a prominent lawyer and member of congress of that time. Time is wanting for a recital of the arguments put forward in support of this claim. To an unprejudiced layman however it certainly appears from the evidence at hand as if the claim for interest was supported by good and sufficient precedent and was entirely just. A certain amount of favorable action was secured at different times, but it was never carried through, and in the end nothing ever came of it.

Another contest which he carried on at the same time with the one last mentioned arose from his keen desire to obtain a regular appointment on the peace establishment with commission preferably as surgeon of the General Hospital at Fort Columbus. The letters of the last few years of his life are full of appeals to his friends for aid in this matter. For example, writing to Major Amos Stoddard at Washington, June 27, 1812 he says:

> Pray tell me how my affairs goes on with the Secretary. of War, favorable or unfavorable. to repeat what I have said before there ought to be a surgeon & mate appointed to the garrison Fort Columbus governors Island, Philip Turner surgn. his son Wm. P. Turner mate, in case the old gentlemen should be taken away, his son on the spot, ready to fill his place, by which appointment the public may be better served, they arranging their domestic affairs accordingly & on purpose to be depended upon . . . Everything said is confidential . . .
>
> P. T.
>
> dear Majr . . . Now's the time . . .

His old friend William Eustis again came to his aid in the following letter to James Monroe then Secretary of State:

> New York Janry. 10th 1813
>
> Sir,
>
> In this City I meet an old acquaintance Docr. P. Turner formerly Hospital Surgn. in the revolutionary war, who was appointed by Genl. Dearborn while Secretry. of war, to perform the duty of the Garrison at Fort Columbus with the pay & Emoluments of Surgns mate in this Capacity he has served with great fidelity to this time, it had not occurred that he had not received a regular appointment as Surgns mate on the peace establishment, and if it had, I should tho't him deserving a higher grade, in the medical department. Genl. Burbeck who has witnessed his conduct is willing that Dr. Turner should be appointed Surgeon to the Regt. of Artillery, but as he is advanced in life and has a family in N. York he would be satisfied with the appointment of surgns mate on the peace establishment, for which he is well qualified—
>
> With great respect
>
> The Hon. James Monroe Your Obt. Servt.
>
> I expect to leave town tomorrow W. Eustis

The very next day Dr. Turner despatched a "follow up" letter to Daniel Parker, Chief Clerk at the War Department in which he states:

> I am happy to inform you that Doctr. Eustis solicits your attention to his letter of the 10th inst. to Mr. Monroe, Secretry. of state, now acting as secretry of War, on the subject of an appointment in my favor, either as Surgeon to the Regt. of Artillerist under the command of Genl. Burbeck, or post surgeon's mate on the establishment at Fort Columbus, or at the U. S. arsenal at New York. I claim the post from a long residence of years, and repeated promises by Genl. Dearborn & Doctr. Eustis.

Finally as a result of all this effort, notice came from Parker, under date of February 12, 1813, of his appointment as surgeon to the 1st Regiment of Artillery. There was an unfortunate error in the christian name, it being at first entered as Peter instead of Philip, due doubtless to Dr. Turner's habit of signing himself P. Turner. Parker assured him: "It will be sent to the Senate again for correction in a few days when your commission will issue."

His troubles were not yet over, however for in spite of such unequivocal assurance the commission did not arrive. In fact for unknown reasons, notwithstanding constant reminders and all manner of fervent pleas on his part, it never did arrive. On April 18, 1813 he writes to General Armstrong, Secretary of War: "I wish if it be convenient, your Hon$^{r}$. to Issue my commission that I may have something to show for my situation."

The same day to Daniel Parker he says: "By your pleasing letter to me of the 12$^{th}$ of Feb$^{ry}$ 1813, I was induced to get me a regimental uniform dress, which I dare not appear in, until I have my Commission."

Again in August:

"If there is any difficulty, why my Commission is not Issued, pray tell me what it is, not for my sake only, but for our old friend's sake Doc$^{r}$ Eustis. I know you will do it. Appear for me once more."

From then on almost all the letters refer to his failure to receive the promised commission. Addressing the President, August 18, 1814 he writes:

"I have wrote them repeatedly, especially the War department, and cant get a word from them, no more, than if they did not exist. I am by them most unreasonably neglected, all I want is an appointment approbated & Commissioned by the president."

A little later, in October, to Secretary James Monroe he complains:

"Yet I dont find my name on the list of appointments, nor a commission issued, it is an unhappy situation to be in the dark. . . . I have been wronged and neglected somewhere."

He never got over this apparent neglect or slight, and the resulting bitterness went with him to the grave.

Mention has been made of his tendency to criticize his medical confreres especially the younger element. With advancing years this habit grew upon him. Apparently he could see little praiseworthy in his younger associates, and the later letters contain very strong, not to say intemperate strictures upon their lack of knowledge and skill. In some instances his attitude was probably justified but one can hardly help suspecting that his judgment was somewhat warped by an undercurrent of not unnatural jealousy.

It may be worthwhile to quote one or two examples. Writing Daniel Parker June 4, 1813, he says:

> Our medical arrangements of the United States require Doct$^{r}$. Eustis, or some other gentleman equally meritorious, as director at the head of the department. The case of the much to be regretted Maj$^{r}$. Stoddard & many others who have perished in their Country's cause, needed the aid of the most experienced and well informed men. It cannot be supposed that young men, who never saw a gun-shot wound, should know how to manage them, all gun-shot wounds in their nature, ever so simple, are always more or less dangerous, and on those attended with sphacelations from lacerated flesh, fractured bones &c. &c., the greatest medical skill is required. The unexperienced are lost in their duty, and know not what they are about. I fear our wounded all around us are Suffering from the want of the aid of those who are practically informed. From the opportunities I have had in life, I know it to be a fact.

Finally in a postscript he lets himself go as follows: "There is a set of the dam'dest rogues and fools got into service that ever God made, and we cant help it."

Again January 18, 1814 he writes President Madison:

> I went through the revolutionary War from the beginning to the end, in various Capacities, & as surg$^{n}$. Gen$^{l}$. for several years & profess to know something about it, practically and otherwise. the present faculty of physic & surgery, employed in service are principally unexperienced men, destitute of practical information. it is a known fact that some of them, in the Character of surgeons, does not know the use of a common lancet, nor the dressing of a simple wound, such impositions on the public are insufferable. there are as many again of them in service as are needed, without they know better what they are about.

He closes this letter, as many others of this period, with a little plea in his own behalf: "As to myself, I shall be happy to serve the public in any capacity they shall see fit to place me in. being advanced in life should prefer an appointment of one of the Surgeons of the first Regiment of Artillery on the peace establishment which I am entitled to."

Several of his letters to the presidents begin with a rather naïve expression of sympathy. June 27, 1814 he writes to President Madison:

> There is no one feels more for the present administration & government than I do. your philosophic defense & faithfulness is equal to support you under all abuse. there is a dam'd crew in the world, & we cant help it. they must be suffered to go to Hell their own way. here you find I have grown mad.

He constantly waxes hypercritical of the present medical department as compared with that of former times. There is this to be said however: his criticism is meant to be constructive for he is continually bringing forward his own plans for reorganizing and bettering the service.

During the course of the war of 1812 he was much upset by being temporarily transferred to the command of the arsenal in the city of New York, resenting what seemed to him a reflection upon his capacity and fearful that it meant a permanent change of station. That such intents were not in the minds of his superior officers is shown in the following letter:

> New York, Sep^r. 24^th, 1813.
>
> Sir,
>
> I regret you should feel any uneasiness respecting your removal from Gov.-Island. the advantage of the Service required this arrangement & a desire to render your situation more comfortable, and your public duty less arduous, was a strong inducement with me to station you in the City—this change can in no manner affect your standing, or privileges in the army—the one is on a good foundation, the other immutable,—and so far as I can contribute to your Comfort, & happiness, you may rely on me—Your Reputation cannot suffer—
>
> I salute you Sir with Respect & Esteem
>
> John R. Fenwick
> Col. Com^ng.
>
> Dr. Turner
> Surgeon 1^st Reg^t.
> U. S. Artillery

In one of his letters occurs a list of the books provided for the post by Congress. They were: "Cox's dispensatory, Sydenham revised by Rush, Cooper's Surgery, with the addition of Pringle on diseases of the Army," "all we want," says Dr. Turner. On the other hand that he was not insensible to the appeal of the newer medical books is shown in a letter to Richard Reece of London dated May 18, 1810:

> Dear Sir, There is no one better pleased with your medical arrangements than I am, especially, your medical guide, and dictionary think it a great pity they were not published on better paper. the family medicine chest, termed the family dispensary complete, Caton on venereal disease & Cow pox, Hoopers Anatomist vade mecum; with compendious medical dictionary the latest & best edition, his diagram of the Eye with explanations, and his thoracic & abdominal viscera all colored Denmans Vectis, & Lithotomia cachee, both neatly finished please to send the above articles p^r. the Bearer Cap^t Eldridge and the Bill, that it may be acknowledged & paid agreeable to your expectation, on his return to London, or the first opportunity, let them all be of the first quality & the Books in Boards—
>
> Dear Sir your Ob^t. Serv^t
> P. Turner
> physician & surgeon of the
> public garrison & New
> York
>
> Richard Reece M D.
> Henrietta Street
> Covent garden

There are numerous other papers well worth reproduction in whole or in part but further quotation must be limited to one more.

The last letter extant is dated February 2, 1815, only a few weeks before his death, and addressed to "Dan^ll. Parker":

New York 2$^{d}$ Feb$^{ry}$. 1815

Hon$^{rd}$. Sir,

I am pleased to find you in office, one of the first of the nation, and congratulate you as such. in obedience to your orders of the 6$^{th}$ ult$^{o}$. 1815 I report myself in service by virtue of your letter, one of the Surg$^{ns}$ of the U. S. Artil$^{ry}$., directed & approved by all our Commandants (of late) at this post, Col$^{o}$. Fenwick, Gen$^{l}$. Dearborn, Lewis, Tompkins, & Gen$^{l}$. Boyd, to attend my medical duties at the U. S. Arsenal, the North & West Batteries, the recruiting rendezvous of the City of New York, Sick in private quarters &c &c, more medical duty than all the rest. Notwithstanding, I shall be happy to have this report meet your approbation, I have nowhere else to look but to you. I have experienced your goodness & beg its continuance. I want to see my name on the list of appointments, I ought to have filled the vacancy of Doc$^{r}$. Le Baron. pray let me hear from you once more. If the public wish to continue me in service, I wish to know it. if I have done anything to hurt your feelings toward me, I know your philanthropic disposition will forgive it. it is a Constant suffering to be in the dark—I know the whole of our medical strength. If this war goes on, it must be modaled a new from top to bottom—

I am your Hon$^{rs}$ Ob$^{tt}$. Serv.
P. Turner

Dan$^{ll}$. Parker$^{I}$ Esq$^{r}$.
Adjn$^{t}$. & inspector Gen$^{l}$.

Dr. Turner's long professional and military career ended with his death on April 20, 1815. He carried on to the end, died in harness, and was buried with military honors in old St. Paul's Churchyard. According to the records in the vestry his grave was in the southeast corner of the yard, but a recent careful search has failed to identify it. In the case of many of the stones the inscriptions cannot be read due to the flaking off of the surface of the sandstone. The copy of the inscription on file in the vestry was made about forty years ago and even then some part of it was illegible.

Dr. Turner's fame will rest upon both his long and honorable military record, and his skill as an operating surgeon. The latter is the more remarkable by reason of his scanty early opportunity to acquire even such a limited knowledge of practical anatomy as was essential in the restricted field of operative surgery of his day. His own belief as stated in one of these letters was that: "A man ought to be born for the Science of physic & surgery and know well the use of his Head & hands." "it is not all the researches & inquiries of Chymistry under the Heaven, that would make a physician or surgeon." It is a pity that so little has come down to us regarding his achievements in that field in which we have good reason to believe that he had no superiors and few equals.

With regard to his personality also the data are unfortunately meager and one-sided. That he was ambitious, a hard worker, and to the end devoted to his profession and faithful to its duties is beyond question. Apparently of a sanguine and rather mercurial temperament he yet showed great tenacity of purpose and was a gamey fighter.

With a wholly justifiable pride and confidence in his own ability and jealous of his prerogatives he was probably at times quick tempered and perhaps difficult to get along with. He doubtless was wedded to the old ways and impatient of innovation. On the other hand he seems to have had highly developed social instincts and while possessing his full share of the basic virtues was gifted also with other attractive traits of character. To my mind he would appear to have been a warm-hearted, impulsive, generous gentleman, self-reliant to a marked degree, a bit choleric at times, but in the main good-humored, with an open responsive bearing, a keen interest in people and things, a lively and winning manner which made him an entertaining companion and brought him many and enduring friendships.

A few words as to Dr. Turner's family. His oldest son John, 1764–1837, distinguished alike for professional skill and nobility of character became a very prominent and successful physician, in his home town of Norwich where he practiced for many years. Another son, William Pitt was also a surgeon by profession, residing in New York. He is described as: "one of those sportive and original characters that give a lively zest to the social circle."

Of his daughters, Lucy Ann married Dr. Gurdon Lathrop of Norwich, 1767–1828, a graduate of Yale, known as a druggist as well as a physician. Elizabeth married Daniel Lathrop, also a Yale graduate, son of Dr. Joshua Lathrop who was the junior partner of a famous firm of importing druggists in Norwich. He succeeded to and successfully carried on his father's business.

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# JARED ELIOT

## A PASTOR-PHYSICIAN OF THE EIGHTEENTH CENTURY*

*By* E. H. JENKINS, PH.D.

NEW HAVEN, CONN.

JARED Eliot, as we shall see, engaged at different times in several totally distinct lines of study and practice. He "meddled with all knowledge." But his chief interest for the medical profession lies in the fact that he was a very noted physician and medical instructor in New England at a time when there was not a medical school nor any professional school in the American Colonies. A brief notice of his life should therefore be of interest.

A man's life begins in the generations which have gone before him and there, as a rule, should the story of his life begin. For good or evil he is in part chained to the qualities of his forbears. Inheritance and environment are his two companions for life. He cannot dismiss either. Which will do most in shaping his course, whether they will work together or at cross purposes, how far he himself will control them, fight, follow or drive them, these are the matters that make the "war in our members" which St. Paul described and which plague all of us. A brief notice therefore of his immediate ancestors may well precede the story of Jared Eliot's life and will show in the course of it how the virtues of the fathers, no less than their sins, are visited upon their children and their children's children to the third and fourth generation.

Let us begin with his grandfather, John Eliot, the Apostle to the Indians. He was educated at Jesus College, Cambridge, and taught in England for a time in a school conducted by Rev. Thomas Hooker, through whom he was led to enter the ministry. In 1631 he came to Boston and soon settled in the ministry at Roxbury, Massachusetts, where he served for fifty years.

His labor for the Indians is known to all and his great work in translating into the Indian language the whole of the Bible, a psalter, a grammar and catechism. As further food for their sinful souls, he translated for them Richard Baxter's "Call to the Unconverted." As a call to the unconverted in the language of the Massachusetts Indians the book has depreciated in value as far as ever did the German mark, but its present call to the book collector of fortune is louder than was ever its call to the unconverted. At a London sale recently, an American collector and dealer paid $33,000 for a copy of it, supposed to be unique; but immediately there appeared another copy in Illinois which had come down through four generations in the same family.

As the Puritans were much dissatisfied with their Psalm book and wished one which followed more closely the Hebrew original, John Eliot, in collaboration with two other clergymen, prepared the Bay Psalm Book, being the whole book of the Psalms faithfully translated into English meter. This was printed in Cambridge, Massachusetts, in 1640, being the first book printed in English America. It went through more than fifty editions and was quite extensively used in England and Scotland until about the middle of the eighteenth century. Its quality may be judged from the first verse of the one hundred and thirty-seventh Psalm:

The rivers are of Babylon
There when we did sit down,
Yea, even there we mourned when
We remembered Zion.

John, the Indian Apostle, lived an earnest, productive and holy life and must have died "in the odor of sanctity," for a biographer records that "His last Breath smelt strong of heaven and was articled unto none but very gracious notes." The record says: "He left behind him in England a vertuous young gentlewoman whom he had pursued and proposed a marriage unto, and she coming here the year following, that marriage was consummated in October, 1642." Her name was Anna Mountford or Hannah Mumford.

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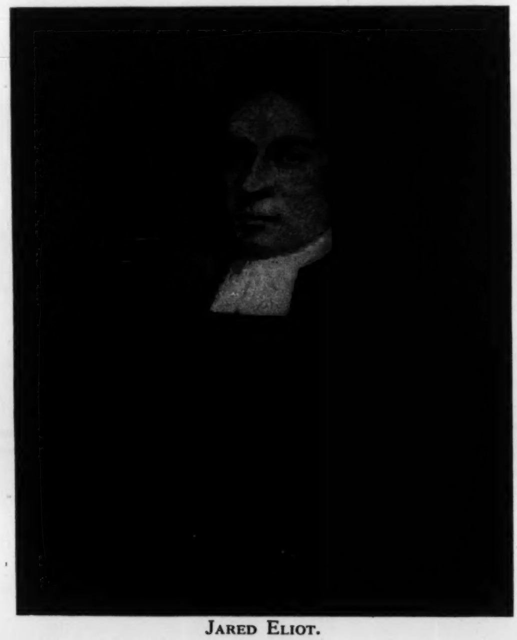
* Address delivered before The Beaumont Medical Society, New Haven, Conn., Dec. 10, 1926.

Of her it is recorded that she was gifted in physic and chirurgery and was said to have been celebrated far and wide for her prowess in conflict with disease. This taste and skill in the practice of medicine seems to have been inherited by the large number of physicians among her descendants. "She is said to have dispensed many safe, good and useful medicines unto the poor that had occasion for them."



Jared Eliot.

(By permission, from The Genealogy of the Decendants of John Eliot, 1598 to 1905, by Mrs. Wilimina H. Eliot Emerson.)

Among those good and useful medicines, a prescription for curing rickets calls for a mixture of equal parts of ox gall and butter simmered for three or four hours with as much wormwood, rue and fetherfew as the liquid will contain, strain and anoint the child's breast and across the short ribs every night for a month and frequently give the child water wherein a handful of currants has been boiled. "She hath cured many with it and it seldom faileth."

What other qualities may have been a part of the heritable factors of John and his wife we do not know. But here were sound physical constitution, mental energy, zeal for service to their generation, a taste for the practice of medicine and piety. These traits, or at least some of them, must have been part of the inheritance of their children.

Their son, Joseph, the father of Jared, born in 1638 and graduated at Harvard in 1658, abandoning his original plan of continuing religious instruction of the Indians, settled as a minister in Guilford where he remained till his death in 1694. His homestead and farm have been, until recently, in the possession of his descendants, among whom was the poet Fitz-Green Halleck.

Joseph was a physician as well as clergyman and presumably an apothecary of sorts. In 1683 the town appointed two men "to endeavor to get some poyson of Mr. Eliot and to take his directions for the improving of it for the poysoning of the Woolfes."

Somewhat earlier the town at a special meeting voted to buy the stock of physic and physical drugs from the sister of a deceased New Haven physician, which were to be paid for "by wheat and peas and some beef, if the beef were suitable and some flax, if the market for flax did stand," half of it down and half the next spring. So an agent fetched "the Phessick and phesseckal drugs" and delivered them to Mr. Joseph Eliot for the town's use.

The Reverend Joseph does not seem to have been in any way a great man, or a man of brilliant parts, but, says his biographer, "Rich in all that best part of a good man's life, his little unremembered acts of kindness and love." He was twice married and had eight children, one of whom was Jared.

In May, 1694, Joseph passed on, leaving his body in an unmarked grave on the east side of Guilford green and leaving an inheritance to his children consisting of ability as a clergyman, some knowledge and skill in medicine and his little acts of kindness and love.

With this inheritance enters Jared Eliot, born November 7, 1685, in the house of his father on the southwest corner of Whitfield and Water Streets in Guilford. The father, who was also the town physician, must have had professional as well as a more personal interest and care in the event and it is natural to surmise that Elizabeth Smithson, who also served her neighbors in such crises, presided at this birth and welcomed the newcomer. She did not know that this pink morsel was her own future son-in-law nor that after her death he would preach a memorial sermon in her honor which would be printed by citizens of the town and would be treasured in libraries for more than two hundred years.

Of his boyhood we know little. He is said to have been slow to learn as a school boy, but what he once acquired he never lost, for he had a very retentive memory.

The Rev. Thomas Ruggles, in his funeral discourse records that he was "left a minor in his childhood." He was nine years old when his father died. But by the care of friends he obtained a liberal education "in an academical course of studies" in Killingworth and came under the tuition of Rev. Rector Pierson, the first who "had the care of the Collegiate School of this Colony of this town." That the Connecticut foundation was called a school rather than a college and was chartered rather than incorporated was to avoid any trouble with English authority and was given, says the record, "so low a name, that it might better stand wind & weather."

"He was truly a good scholar," says Ruggles, "and well acquainted with the principles of true philosophy, which laid the foundations of his future vast compass of knowledge and shining improvements."

In 1706 Eliot received the bachelor's degree, in the fifth class that graduated from Yale College, numbering three.

After graduation he taught school in Guilford so acceptably that he received £35 "country pay." Those who sent scholars might have wood credited to them at the rate of 4 shillings the load. Then, and for some time afterward, specie was very scarce and barter largely took the place of money. It would be interesting to know the items in which this schoolmaster received his "country pay." A shoemaker's ledger from 1770–1784 shows that he was paid for making and repairing shoes in walnuts, butter, sugar, salt, milk, wheat, rye, wool, meats, cider and rum. But he could not have been there more than a year or two. In 1707 Rector Pierson died and soon the town of Killingworth, "on advice," called Jared to supply the vacancy in the pulpit.

He accepted the call as a supply, but, perhaps because of his youth and also because he was somewhat occupied as a school teacher, he was not installed as the pastor till October, 1709. Then, in the words of Ruggles, "he was peacefully settled and so he has for more than fifty years peaceably and harmoniously shined in this candlestick, a burning and a shining light both here and in all the churches round about." As late as 1836 his house in Killingworth was still standing, not far from the church.

Divinity was his first and principal study. He was well acquainted with the ablest polemical writers and an excellent critic.

Ruggles says his discourses were always instructive and "entertaining," a rather unusual quality we are inclined to think in the sermons of the rigid Puritan clergy, though ideas of entertainment may seriously differ. But differences of opinion as to the principles of religion did not prevent practice of the great law of love nor of Christian charity to the whole household of faith. Perhaps it was this quality of Christian charity which led to his appointment on a committee of four (in the time of pastor Ruggles, that stormy petrel of the Guilford church) whose mission it was to pour the oil of Christian charity on the troubled ecclesiastical waters.

It is recorded that for more than forty years he never failed of preaching, at home or abroad, a part of every Sabbath. A number of Jared Eliot's sermons were printed and are preserved in various libraries. These do not contain very much of absorbing present interest, but as monuments of the sermonizing architecture of a past age they are worthy of notice. There is a sermon on the "Blessings Bestowed on them that Fear God, as was showed in a sermon occasioned by the Death of the truly Vertuous Mrs. Elizabeth Smithson" (elsewhere described as a gentlewoman of extensive charity and benevolence), who died at Killingworth, February 12, 1738–9; from the text,[1] "And it came to pass, because the midwives feared God, that he made them houses." First comes an introduction, explaining the situation of the Israelites in Egypt, the king's command to destroy all male children, etc. Then comes Doctrine, with two main propositions: First, God will bless those that fear him. Second, God will bestow blessings on them who, in the fear of God, are eminently useful. Under the first he cites and elaborates nine separate blessings. Under the second there are only two special blessings. Then follows a tribute to Mrs. Smithson and her services to the community of Guilford. "She knew when to exert herself vigorously and also when it was her strength to sit still." Then comes Use, under two headings. He draws the moral from what has been previously said and the final exhortation follows, the whole in thirty printed pages. Mrs. Smithson was his wife's mother and a notable midwife, whose labors in that office did not cease till her death at the age of eighty-six years.

The midwife has almost passed from our ken. Now, expectant mothers go to a hospital and are attended by a group of diagnosticians, obstetricians, pathologists, chemists and nurses, and the babies, properly ticketed for identification, are stored in a place by themselves like other hand baggage.

Not so within the memory of some of us. There came the midwife, introduced to us as "Auntie." She finished the baby linen, she looked after the comfort as well as the morals and manners of all the children, extending even to the care of their faces, hands and ears; she kept the house.

As matter of form some one was sent for the doctor when the miracle was imminent, but he might be five miles away on another case. But "Auntie" welcomed and cared for the baby (it always weighed 8 pounds) cheered and comforted the mother and did everything necessary and managed the housekeeping until the mother was "about" again. Of course if some dreadful complication or disaster followed, it was the will of God. It is doubtful if the family doctor of those days could have done better than she.

She was not a servant. She was not a trained nurse. But she was an essential part of what as children we regarded as something very mysterious and very sacred, and she ranked in our minds with the minister and the doctor. In those days no stork brought babies to New England. God sent them from His baby storehouse and in some mysterious way "Auntie" was concerned with the transfer.

Why not a memorial sermon for her? And the congregation asked to have it printed, and Historical Societies and University libraries treasure their copies of it.

There is a single homely tradition that one Sunday morning, just before "meeting time," Jared found a rent in his long, black stocking. Not to trouble Hannah, his wife, to make hurried repair, or himself with a change of stockings, he inked the exposed part of his person to make the rent less obvious, and then gave himself to the sacred duties of the Sabbath.

If Jared's service as a pastor were all that could be said of his life work it would be in itself an honorable record. But it is only a part, perhaps the smaller part, of his work for his generation.

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[1] Exodus I, 21.

He was equipped with a physique and an energy of mind and body capable of great achievement. A man well proportioned, with a countenance frank and dignified, with a constitution capable of enduring hunger and thirst, heat and cold, without sensible weariness, he incessantly applied himself to the many kinds of service which his time and tastes presented to him.

Says the Rev. Ruggles:

> Idleness was his abhorrence; but every portion of time was filled with action by him. Perhaps no man in his time has slept so little and done so much and in so great a variety, and if the rule of judging of the length of life be the measure of doing, perhaps he lived as long as the Antediluvian Patriarchs who numbered so many hundred years in the course of their pilgrimage.

After he was settled in Killingworth in 1710 he married Hannah Smithson of Guilford. It may be that a rumor had got abroad that he was "pursuing or purposing a marriage unto" some Guilford damsel. At any rate, it is recorded that "The Town agrees to give Mr. Jared Eliot, when he, the said Eliot, shall marry or have a family, 60 loads of good firewood a year." When he had eleven children this was increased to 80 loads with a salary of £120.

Of the eleven children, two of them daughters, one died in infancy and the other married Dr. Benjamin Gale, a physician of Killingworth. Four of the sons became physicians, four were farmers and one a merchant. In all they represented their home town in twenty-nine sessions of the General Assembly. Says Ruggles:

> As a husband he was kind and engaging, as a father, most affectionate and tender; and as God blessed him with a numerous family and a plentiful fortune, he liberally expended it in their education, instruction and comfort. In his house he was liberal, courteous and generous, in a gentlemanlike hospitality.

This was no sour-faced, small-souled bigot at whom it was once the fashion to jeer. Writes Benjamin Franklin: "I remember with pleasure how I enjoyed last winter in your company and I would with all my heart give any ten of the thick old folios that stand on the shelves before me for a little book of the stories you told me then with so much propriety and humor." The "propriety" of the stories Franklin notes. Their acquaintance began in this way.

Travelling to Boston on horseback, and engrossed in reading, Franklin did not notice that the horse turned into the lane leading to Eliot's house. Eliot happened to be coming out and met Franklin half way. Franklin saluted him, apologized and started to turn his horse, but Eliot said, "I once owned that horse and he knows the way." He invited Franklin to come in and rest. Their talk developed much of mutual interest and began an acquaintance, friendship and correspondence which lasted during Eliot's life.

I quote part of another letter, dated April 12, 1753, from Franklin, which shows more clearly the relations between the two men. Peter Collinson, named in the letter, was an English botanist, a correspondent of both Franklin and Eliot. Franklin writes:

> The Tattler tells us of a girl who was observed to grow suddenly proud and none could guess the reason, till it came to be known that she had got a pair of new silk garters. Lest you should be puzzled to guess the cause, when you observe any thing of the kind in me, I think I will not hide my new garters under my petticoats, but take the freedom to show them to you, in a paragraph of our friend Collison's last letter, viz.—But I ought to mortify and not indulge this vanity: I will not transcribe the paragraph, —yet I cannot forbear.
>
> If any of thy friends, says Peter, should take notice that thy head is held a little higher up than formerly, let them know. When the grand Monarch of France strictly commands the Abbe Mazeas to write a letter in the politest terms to the Royal Society to return the King's compliments and thanks in an express manner to Mr. Franklin of Philadelphia for his useful discoveries in electricity and application of the pointed rods to prevent the terrible effects of thunder storms, I say, after all this, if thy crest is a little elevated, is not some allowance

> to be made? . . . I think now I have stuck a feather in thy cap, I may be allowed to conclude in wishing thee long to wear it. Thine, P. Collinson.
>
> The pride of man is very differently gratified, and had his Majesty sent me a marshall's staff, I think I should scarce have been so proud of it as I am of your esteem and of subscribing myself, with sincerity, dear sir, your affectionate friend and humble servant, B. Franklin.

Making due allowance for the rhetoric of a finished diplomat, the letter, with others which I need not quote, shows his familiar friendship and regard.

The Yale Library has a number of manuscript letters to Eliot, but the only manuscript of his which I have found is in a Boston library to Edmund Quincy on farming matters. The Yale Library has, however, the fragment of a letter from another man to which Eliot has appended a note in which he writes:

> I must be allowed in my humor in giving vent to what comes uppermost, or I shall be but a dull, heavy correspondent or none at all. Mr. Franklin & I agreed in this indulgence to write as matter offered or the fitt should take us, sometimes every week & sometimes not in 3 mos.

This casual scrap makes one long for Eliot's familiar correspondence which I have not found. Surely he struck the keynote of perfect letter writing: "As the fitt should take us": to write not as a duty but as a "fitt." Those "fitts" when one is thinking what a good fellow Jones is, or what a noble woman Sally has grown to be, enlarge the heart and make the writing easy and the reading a joy.

While Jared Eliot was a faithful and noted clergyman of the time his natural taste and talent seems to have been for the study of the natural sciences and for the practice of medicine.

Dr. William Welch of Johns Hopkins University says of him: "Of all those who combined the offices of clergyman and physician, not one, from the foundation of the American Colonies attained so high a distinction as a physician as Jared Eliot." His training as a physician it is hard to determine. He had the standard treatises which contained a mixture of chemistry, alchemy and materia medica. From the libraries left by him and his contemporaries it is evident that they were in the habit of reading Hippocrates, Celsus, Galen and Aretaeus in the original. President Stiles says that he received his medical knowledge from the Rev. Joshua Hobart who was "an eminent physician, civilian, and divine and every way a great, learned, pious man living at Southold, Long Island." Jared had, what I presume was equally useful, the experience and skill of his mother (he was too young when his father died to have learned much of medicine from him), and he had besides native ability, love for the physician's work and keenness in observation and in inductive reasoning. His botanical studies made him familiar with the "simples" of the neighborhood. He was credited with special skill in diagnosis. "By a quick discernment he was seldom at a loss what the disease was when he came—tho before a secret—by a penetrating judgment of what was the person's constitution, he knew how to treat the distemper."

He is said to have had special skill in the treatment of dropsy, "whereby great numbers were relieved of their distresses, their lives preserved and their health and comfort restored to them." One of Eliot's prescriptions for this disease has been preserved. At a meeting of the New Jersey Medical Society in 1766 one of its members, Dr. Ayres of Newport (R. I.?) communicated "a celebrated nostrum of the late Dr. Jared Eliot of Connecticut under whom Dr. Ayres had studied."

He had seen it given and had often given it himself with great success in many cases, particularly dropsies and hysterical cases of relaxation. He had never known any bad effects except when given in too large doses. The prescription reads: "Electarium Stomachicum, antihydropsicum vel hystericum specificum. D. D. Eliot, Novae Angliae":

Of gentian and turmeric each 1 ounce
Of myrrh ½ ounce
Of glassi comminuti 2 ounces
Of conserve of rose or absynth as much as suffices of the electuary.

What is *glassi comminuti?* In the place cited it was construed as powdered glass. Glassus is not found in any Latin author, so far as I can learn. Anyhow, the cautious New Jersey physicians decided to defer its adoption until it had been further proved!

Family tradition has preserved one other prescription for a nervous affection, quite as valuable as the other. One of his parishioners and patients, a neurasthenic and exasperating woman, was constantly seeking medical advice and "something to take." He could scarcely get past her home without a summons from her to prescribe. Assuring her that she was chiefly suffering from imaginary ills had no effect. At last he gave her a very thorough examination with much questioning of symptoms, careful scrutiny of her tongue and pulse, with solemn deliberation following and then a promise to bring a medicine which would certainly help her. He finely pulverized an oily old clay pipe, made a mixture of some of the powder with starch and sugar, and prepared "medicine" done up in neat papers. These he brought to her with very careful directions as to their use. The medicine worked. On a following Sunday she reported to her pastor that it had done her a world of good. As a *placebo* a pulverized tobacco pipe was much better suited to those stern Calvinists than the characterless brown-bread pill of the following generation.

Far removed from the "medicine man" of the aborigines stood the pastor-physician of the eighteenth century, though suggestive of him in the union of sacerdotal and medical functions. He was also far removed on the other hand from the college and hospital-trained physician of later years. He often used stronger medicine than the present-day practitioner both in the pulpit and in the sick room. In both places his medicine was often ineffectual and sometimes nauseous. But with equal earnestness of purpose he also had certain advantages, which for one who was studious and observant, must have counted for much in the treatment of the sick, "as well for the body as for the soul." His term of service in any community was longer on the average than that of pastors and physicians today, and so he was better acquainted with all his temporal and spiritual patients, their physical and mental constitutions, their inheritance, family histories, etc., and could thus have a clearer perception of what in a given case might be trusted to the *Vis medicatrix naturae*, supplemented perhaps by some "simple," to comfort the imagination, and what could safely be disciplined with strong drugs or hard doctrine.

Technical knowledge has vastly increased since then, but faithfulness and devotion, like that of Barrie's Weeliam McClure of Drumtochty, was the noblest equipment of the New England pastor-physician, as it is of the family physician of today.

He was in his time the most noted physician in the northeastern Colonies and was frequently called to all parts of the state to consult or prescribe and also outside the Colony to Newport and Boston; and says the record, "much of his practice was performed gratuitously and in charities he abounded."

He naturally became an instructor of physicians. In fact he trained so many students in medicine who afterwards attained distinction that he was called by Thatcher, "the father of regular medical practice in Connecticut." As their number increased and he became interested in new projects he "left off the practice of riding out of town" and his active spirit led him to work in various other directions. Honors came to him. Harvard gave him the degree of M.A. He was a Fellow of Yale from 1730 till his death in 1763, being the first alumnus of the College to serve in this capacity.

Somewhere about 1756 he was unanimously elected (an unprecedented thing) a member of the Royal Society of London, the first native-born American to receive this honor.

And now was it not time for this clergyman, eminent physician and medical instructor to "take rest ere he be gone?" He had not thought of it. His knowledge of chemistry and mineralogy led him to examine "a singular sand, black, brown or red, used for scouring and also called 'writer's sand,'" being used for drying ink on manuscripts, as blotters are now used. The matter had been brought to his attention by Deacon Josiah Stevens of his parish. Eliot proved that the black particles were magnetic iron.

Some time before 1762 his son built iron works in Killingworth, probably for the working of bog iron ore. Jared determined to make a final test and demonstration and in his saddle bags brought home black sand from the beach. The workman in charge of the furnace did not want to make a test. It was not in his line. He knew nothing about such material. Then Jared promised him a bottle of rum if he could produce a bar of iron from the sand, and he adds in parenthesis, "He being a sober man who would use strong drink with moderation and temperance." Finally, after painful waiting, they obtained a substance which, tried with the hammer, was malleable and proved to be iron. Apparently they continued to make "sand iron" successfully for some time and Jared devised a method of separating a considerable part of the sea sand (silica) before smelting.

He was one of the first to develop the iron mines in Salisbury as well as starting the iron works near Killingworth, both of which did good service in aid of the Continental troops in the Revolution.

An account of all the work on iron was summarized in an "Essay on the Invention or Art of making very good, if not the best Iron from black Sea Sand. By Jared Eliot, M.A., of Killingworth. N. Y. 1762." In the same year this essay was awarded a gold medal by the Royal Society of London. He was appointed one of its corresponding members for the manufacturies of Connecticut.

His interest in metallurgy led to large and profitable investments in the ore fields in northwestern Connecticut.

Towards the latter part of his life he seems to have acquired considerable farm land and to have become greatly interested in agriculture, devoting to a careful study of its problems the same skill, energy and scientific attainment which had made him one of the leaders of his time in other fields of usefulness.

He had acquired a large landed estate and the problems of developing and improving this land next engaged his attention and it is recorded that during his life his farms were among the most productive in the Colony. He introduced the white mulberry together with the silk worm which feeds upon its leaves and to him, with President Ezra Stiles, should be credited the introduction of the silk industry into this region.

He was an intelligent experimenter and reported the results of his work for the benefit of the public. Thus in 1748 he wrote the first of his "Essays upon Field Husbandry in New England, as it is or may be ordered." In subsequent years he published five others with an index, concluding the series in 1761. This was the first agricultural treatise published in this country. I think no other obtained such public acknowledgment and use until Prof. S. W. Johnson's books, "How Crops Grow and How Crops Feed," appeared in the last half of the nineteenth century. Benjamin Franklin showed his appreciation by ordering fifty copies and the Essays were reprinted in London.

Jared Eliot appears to have been the first to introduce a somewhat complicated agricultural machine and it must be remembered that in his time and for years afterwards, the tools of the farmer were not much better adapted to their needs than they were in the days of Julius Caesar.

It is said that he was largely influential in interesting Bishop Berkeley in Yale College and thus securing his donation of ninety-six acres of land in Rhode Island and 1000 books for the library. In his own will he left £10 to the Yale library, being the first contribution ever made to its funds. Thomas Ruggles in 1770 made a like contribution. The principal of the two now amounts to $115. Not a large sum, as present-day gifts go, but its income has been piecing out the slender income of the Library for one hundred and fifty years.

There is a region in Guilford long known as "Mulberry Farm." This, or a part of it, was one of the farms owned by Jared Eliot, and was so named, no doubt, because of his planting of mulberry trees there for the culture of the silkworm. The remnant of an old dyke is still there which it is believed was cast up by him to protect farm land from exceptionally high tides. There is, or was until lately, a single mulberry tree still standing, which I hope is a relic of his mulberry grove; of which he writes.

> As a further inducement to plant mulberry trees, such groves are proper places for retirement and meditation . . . Surely it is not without foundation that in all ages and countries trees and shady groves have been the subjects of poets, both heathen and divine. It is needless and it would be endless to recite what has been written on this darling subject.

To list separately the heathen poets and those who are divine would be difficult. Would not Eliot himself have classed the author of "The rivers on of Babylon" as divine and most writers of *vers libre* as heathen?

Of course in our time no one man could become eminent in so many different fields as was Eliot. Today we rather distrust a man busying himself with investigation in many fields. But the pioneer had a much wider field for profitable activity. In Eliot's time there was not a professional school in the Colonies. Instruction in theology was of course given by clergymen. Many separatist clergymen in England, anticipating a forced exile, had given attention to the study of medicine. So the practice of medicine and the instruction of others in it became a part of their professional work in the Colony.

Here were iron works in the village, increasing demands for iron and steel and need for other sources of ore than the bog iron of the region. Diversified industry was calling for a more productive agriculture, and here was a man of great physical endurance, fond of natural science, a student, like Karshish that other physician,

> The picker-up of wisdom's crumbs,
> The not incurious in God's handiwork,

who saw the needs of his time and these wide fields of study gave effective exercise to every quality of his active mind. He was no quack or dilettante; he was a pioneer.

Eliot remained the pastor of the Killingworth church until his death. After a brief illness he died April 22, 1763. His body rests by the side of his wife, who died two years before him. They lie near the church where he had labored for more than half a century and in the midst of a village to whose sufferers he had long ministered and whose industries he had advanced.

Yale College had trained him "for employment in church and civil state" and he had filled his seventy-eight years with fruitful service for both.

# KARL FREDRICK BURDACH*

JUNE 12, 1776–JULY 16, 1847

*By* THEODORE H. BAST, PH.D.

MADISON, WISCONSIN

BEFORE the middle of the seventeenth century family names were uncommon. The farms or localities, however, had names and so the given name of an individual was combined with the name of the land on which he lived. In Esthonia this condition existed well into the eighteenth century. It was the Reverend Roth who made the suggestion to his congregation that it was more fitting to honor their ancestry by perpetuating their name than to assume a name relating to external circumstances. This plan was pleasing to his people but since they did not dare to name themselves, Reverend Roth was obliged to select names from history which were suitable for them. The perpetuating of the family name became a great fad. In many families a record of birth and death was kept in a large family Bible. This was further augmented by commemorating the death of a member by a piece of poetry composed by one of the survivors. With the beginning of the nineteenth century this custom was neglected in the rush for progress. The past was forgotten as rapidly as possible and only the forward look was recognized. Family registers were neglected and lost.

In his autobiography, Karl Fredrick Burdach prides himself in still having access to a family register dating back to 1638. This register reveals that Simon Burdach, a farmer, had a son Andreas Burdach who was born in 1638. In 1665 he became pastor of a church in Kohlo bei Guben. He had seven sons and four daughters. He died in 1723. One of his sons Johann Christian Burdach succeeded his father as pastor at Kohlo. He had ten children and died in 1770. One of his sons Johann Andreas Gottfried Heinrich Burdach succeeded his father as pastor at the same church. He died in 1804 and left a son, Christian Gottfried Heinrich Burdach, who again was pastor of the church in Kohlo. He died in 1823. The pastorate at Kohlo therefore was supplied by the Burdach family for one hundred and fifty-eight years.

Karl Fredrick Burdach's father Daniel Christian Burdach, born in 1739, was a son of Johann Christian Burdach. He studied in Leipzig from 1761 to 1766 and in Berlin under Meckel and Walter in 1767 whereupon he returned to Leipzig in the capacity of a "docent." In 1768 he became Doctor of Medicine. During the same year he married Karoline Sophie Koch a descendant on her mother's side from Bernhard Siegfried Albinus. He soon set up a fine practice and his thorough work as a docent assured him rapid advancement. But fate had different plans in store. An injury to his foot was neglected and caused severe systemic disorders which resulted in his premature death in 1777.

Karl Fredrick Burdach was born June twelfth 1776, one year before his father's death. He was born into circumstances which for most children would have meant a loss of all educational privileges. His father's illness robbed the family of all of the savings and most of the dowry which Mrs. Burdach had received from her father. Mrs. Burdach's father was a rich farmer but the fact that his daughter's dowry had been used in nursing her sick husband made him furious and he refused her further support. He would have taken her and her son into his household, but she knew that this would mean a life of slavery for both. She had set her mind on having her son follow the footsteps of his father and getting a good education. She, therefore, decided to remain in Leipzig, take boarders, rent rooms, sew, etc., in order to make a living and thus give her son the opportunity to come in contact with the best class of people and receive a good education. She was a well read person, mixed well with the University folks and was a delightful conversationalist on any subject that was not purely technical.

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* Read before the University of Wisconsin Medical History Seminar, February, 1927.

From the University she received a widow's pension and several of her husband's colleagues added enough to this to make about one-hundred thaler a year. From her mother she also received help whenever she could do so without her husband knowing it. This together with her other activities made it possible for them to struggle along. Mrs. Burdach's whole life was centered on young Karl Fredrick. She spared no money in giving him every opportunity. His dress was such that he was attractive in the best of company. For his private teachers she got the best money could obtain. She was severely chided by her relatives for such extravagance and while she was sorely grieved at her relative's persecutions she was not moved from her decision to give her son the best she could.

Young Karl Fredrick was well liked by the students who enjoyed playing with him. Then too, he was a favorite among the ladies of Leipzig and spent much time at their homes which gave his mother more time for work.

The individuals which left a lasting impression on him were his private teachers and one of his uncles who was a student of theology at Leipzig and lived at their house. This uncle took a fatherly interest in young Karl Fredrick throughout his boyhood years. He was an inspiring teacher and after he had entered the private teaching profession in a different town he, on several occasions, had Karl Fredrick come to him for instructions when he was not progressing in his studies as he should. Karl Fredrick was a wide-awake boy. His studies were easy for him but he studied little. During his early adolescent years he attended a school in Leipzig whose teachers did not interest him. He did not have will power to work when not urged to do so. He neglected his studies and made no progress. It was his uncle that saved him from an educational failure by taking him into his charge.

Burdach's early life was a happy one. Things seemed to happen his way. His mother did everything for him. The neighbors and strangers he met all took a liking to him. No doubt these circumstances laid the foundation for his happy outlook on life. This early outlook influenced his entire future and led him to lead a free life. He did what he liked and left undone what did not interest him. But he always tried to be truthful. He never tried to appear better than he was. He had a rather sensitive nature. In mixed company he seemed to be unable to find things that he thought worth talking about. However, when he was alone with his personal friends he exhibited a most entertaining personality. He attributed this variable personality to catarrhal attacks, during which the afflux of blood to his brain slowed his stream of thought.

KARL FREDRICK BURDACH.

In 1793 at the age of seventeen years he entered the University of Leipzig. He cast aside the indifferent attitude which marked his high school years. He entered his university studies with enthusiasm. He took philosophy under Heydenreich; natural history, zoology and comparative anatomy and mineralogy under Ludwig; botany under Hedwig; chemistry and pharmacology under Eschenbach; anatomy under Haasen and Ludwig; physiology, pathology, materia medica, therapy and surgery under Hebenstreit; and clinical medicine under Braune who was graduate assistant to Dr. Geyer and acted as physician at the Jacobs Hospital.

While Burdach was interested in philosophy and tried hard to master it, he lacked the mentality to understand many of Kants categories. He was interested in natural science in spite of the fact that Ludwig was a very superficial teacher presenting only generalities. He had a fine collection of minerals but did not know what many of them were, and because of this was told by Reinhold Forster on one occasion that he did not deserve to possess such a fine collection. Hedwig was a good botanist but an uninteresting lecturer. He took his students on frequent week-end field trips which Burdach always looked forward to.

In chemistry Burdach took unusual interest. This course was presented according to Gmelin's test augmented with well chosen, well conducted experiments. Burdach had an unusually clear concept of chemical reactions as understood at that time and engaged in chemical research of his own. He never followed the newer chemistry, which developed during his later life, because of his inability to master the mathematical formulae involved. In physics too he was handicapped because of his unmathematical mind.

Haasen was a poor teacher of anatomy. His lectures were in Latin which he read word for word. He made anatomical demonstrations but usually in such an unorganized manner that no one but himself could see what was demonstrated. Frequently he would say in a very naive manner "Don't you see how nicely I can see this?" When the President of the Supreme Consistorial Court came to visit his classes he would bedeck his desk with skulls and surround himself with skeletons and give his lecture on the relationship of the bones of the skull which he usually gave as an introduction to osteology. Burdach also learned anatomy under Ludwig according to Sommerring's method.

Hebenstreit, who gave physiology, pathology, materia medica and surgery was an excellent teacher. He translated the works of Hunter, Fontana, Gardiner, Gilibert, Bell and Marum and published a book on legal medicine. During the later part of his course Burdach was graduate assistant to Ludwig, but gained little from this since he had to spend most of his time looking after details.

During this period Burdach was greatly attracted by the Brownian System, but later recognized that it could have but little application in general medicine and could be of value only in a very narrow sphere.

That Burdach was no genius became evident during his university career. He showed interest along many lines but was master of none. He was a very pleasing character in the sphere of his immediate friends. He had three close associates. On one occasion they were discussing each others faults. When it came to his turn they all stated that they had no criticism to make about him. His sensitive nature construed this report as meaning that he had no qualities worth criticising. Throughout his autobiography he openly gives the impression that he had but an average mentality. Whether this was actually true or whether he had an inferiority complex cannot be determined from his writings. Fear, however, does not seem to have haunted him. He was happy in all circumstances and faced life in a spirit of contentment. Even though his associates found nothing to criticise in him, they found in him that something which added to the life of the party. Burdach was no book-worm or "Stubenhucker" as he expressed it. He enjoyed the out-of-doors. He fenced, went horseback riding and danced, but in all he could achieve only an average attainment. And yet he enjoyed himself as much as any of them.

In the spring of 1797 he and a number of his friends made an extended foot journey on which they saw the first steam engine in Germany and many other scenes of note. On his return a friend who had just opened a publishing house urgently requested him to write a book on his travels. Burdach at first refused but finally after great pressure he wrote: "Bemerkungen und Gefuhle auf einer Reise über den Harz."[1] He chose mythical characters for his companions and filled in with manufactured scenes of humor. While there were points of interest in it, its humor was stale and the book had but a small circulation. The publisher spent much money on advertising it and commended it with the highest words of praise. The publisher was soon forced to declare bankruptcy. Early in 1798 he wrote a paper on a case of hemiplegia which was completely cured following an attack of epilepsy.[2]

In June, 1897, Burdach lost his mother. This was a very severe blow to him. He was thrown entirely on his own resources. However, fortune was with him. He had just inherited several hundred dollars from his grandfather and he at once took steps to attain citizenship at Leipzig. In August he received his degree of Doctor of Philosophy, whereupon he at once fulfilled the requirement as "Privatdocent." His dissertation was a commentary on one of the books of Hippocrates, "Commentarii in Hippocratis librum primum de morbis epidemicis specimen."[3]

In order to practice medicine Burdach realized that he would have to obtain instruction under some prominent clinical teacher which Leipzig did not possess. He chose Peter Frank at Vienna, partly because he employed the fundamentals of the Brownian System in the treatment of his patients. The fact that it would take all of his inherited money to realize this plan made no difference to him. Thus several days after the successful completion of his doctor's examinations he left on foot for Vienna in an extraordinarily happy mood in spite of the drizzling rain which accompanied him. He stopped six days with relatives at Mittweide, several days with friends at Dresden where he also met several state officials and arrived at Vienna on October the seventh.

In Peter Frank he found a man of fine stature, commanding posture, high forehead and bright eyes. His whole bearing showed great repose and trustworthiness. Frank lamented the fact that at Vienna the teachings of Boerhaave were followed too much. He was an adherent of humoral pathology and considered it more than a mere theory. In the sick room, however, Burdach states one could never notice that Frank was a humoral pathologist. While Frank did not accept the principals of the Brownian System he nevertheless declared most cases asthenic and treated them as such with good results, at least according to Burdach.

Another physician was Joseph Frank, a fiery, jolly, young man who was first physician in one of the divisions of the general hospital. His bedside examinations and histories were always short. To inquire into the diseases of childhood he considered foolish. As a general rule his diagnosis was sthenia or asthenia and were treated accordingly. He was extremely afraid of contagious diseases. In visiting a patient with a contagious disease he had all the windows opened even in severe winter weather before he entered. He approached the patient holding a handkerchief soaked in cologne over his nose and mouth. He took the pulse from as remote a distance as possible. Several visits to this division were enough for Burdach.

Burdach had more respect for Peter Frank than for the other doctors of Vienna. Burdach's interest in Vienna was centered around Peter Frank. Beer, the ophthalmologist and Boer, the obstetrician, were men of high calibre but Burdach was not interested in these fields of medicine.

## BURDACH'S MARRIAGE

Burdach possessed a natural inclination toward the female sex. From childhood on he had lived under the kindly influence of women. He had always felt deeply, the contrast between the harsh, inconsiderate and even brutal manner of his grandfather and the mild, considerate and kindly attitude of his grandmother. It was, however, the spirit of his mother, who in the struggle with poverty, had kept herself fresh and above commonplace things, who had saved nothing for her own good and who had taken the warmest interest in the welfare of her friends, that created in Burdach a profound feeling of admiration for the opposite sex. He desired to find a wife, early in his life, of his mother's type.

A Russian veterinarian by the name of Hager studied at Vienna and there married the pretty Johanna Pichler, daughter of a hotel keeper. Hager contracted tuberculosis and in the autumn of 1797 came to Leipzig for treatment. Professor Hübner a boyhood friend, had taken him, his wife and her one half year old baby into his home. Hager had died several weeks after his arrival. Burdach's mother had met Mrs. Hager and had taken a great liking to her. Because of indignities which Mrs. Hager suffered at the hands of Hübner's housekeeper, Mrs. Burdach had taken compassion on her and had taken her into her own home. Karl Fredrick soon recognized in her qualities almost identical with those of his mother. Burdach wasted no time and on Christmas 1797 he proposed to her and was accepted. In May 1798 she returned to her parents in Vienna. On June the fourth his mother died. It was the same day of the year which had robbed him of his father twenty-one years before. This had left the twenty-two year old boy to fight his way alone. In August as already stated, he received his degree of Doctor of Philosophy and at once decided to leave Leipzig for clinical study. He stated that he chose Vienna because of Dr. Frank. But without question the fact that his fiancee lived there was of as much weight in bringing him to Vienna as was Dr. Frank.

In January 1799 Burdach's future looked bright. Dr. Börner had asked him to become his assistant at Leipzig in place of Müller. Then too, he was told by Minister von Burgsdord that he had every opportunity to obtain a travelling scholarship from the Government for a period of two years. With these promises in view he married Johanna. Had he surmised the pranks of fate he might have done differently. In February Dr. Börner informed him that because of ill health he was obliged for the time being to turn his practice over to Dr. Müller and therefore had to break his promise with Burdach. But still more painful was the notice from the Government that he was not entitled to a scholarship because the faculty at Leipzig felt that he was no more worthy of such an honor than many other students. In later years these same faculty members became Burdach's close friends.

Burdach was thus suddenly thrown on his own resources to begin a practice and support his family. In May 1799 he left Vienna for Leipzig. He succeeded in borrowing three hundred dollars from relatives. This together with five hundred dollars which he inherited from his mother gave him enough to buy equipment for his office. He also rented a home and paid for it in advance. He thus saw his way clear for a year. In October his wife left Vienna for Leipzig. On the way there she gave birth to their first daughter who Burdach named Karoline after his mother. On the last of October his wife arrived and Burdach was overjoyed.

Burdach's practice was all that he could expect. He also made preparations to give a course of lectures which he was to start in April. During the winter months he spent much time with Dr. Börner whose condition was steadily getting worse. When Dr.

Börner died in March Burdach was greatly surprised to find that his friend had left him his Medical Library and one hundred dollars. This money made it possible for him to take his M.D. degree. On the afternoon of April second, 1799, after he had given his first academic lecture, he began his examinations which he completed on June twenty-seventh. This opened for him the way to become a member of the faculty.

Burdach was unusually active in literary pursuits during these first years. As can be seen from the appended list of publications Burdach published seven books and articles from 1798 to 1800.[4,5,6,7]

During the years immediately following he translated a series of books with additions for a publisher which gave him some financial aid. Dr. Segnitz had partly written a text on Materia Medica when he had become ill. He asked the publisher Hinrichs to find some physician who would complete and publish the book. Burdach was happy to do this.[8]

The products of his own studies between 1800–1804 appeared in the form of a periodical and a book.[9] The periodical which was to take up the progress of medicine during the nineteenth century was written by Burdach and Leune.[10] The first volume appeared in 1803.

His book on "Die Diatetik für Gesunde"[11] was a thorough piece of work. In it he departed markedly from the Brownian System which up to this time he had firmly supported. In 1811 it was republished by publisher Hinrichs.

During this time he also began his observations on the pathological anatomy of the brain which he published several years later.[12] He also started to contribute to the *Salsburger Medicinisch-Chirurgischen Zeitung* in 1801, to the *Leipziger* in 1804, to the *Hallischen* in 1804 and to the *Jenaischen Literaturzeitung* in 1805.

## BURDACH'S FINANCE

The first five years of Burdach's private life were marked by a struggle for the physical needs of life. His practice was increasing but only among the poorer class of people which helped his financial condition but little. He was not a climber, his financial condition made it impossible to enter the society of the higher class, and the leading physicians seemed to take special pains in holding him back. As already stated he had translated books and republished others in order to make extra money. But he could not obtain sufficient work of this sort to keep him in funds. He had to borrow and soon his creditors began to haunt him.

He had left no stone unturned to obtain a professorship at some University. He had many willing friends among the German officials who tried to better his position, but it seemed that for every vacancy that occurred a little better man was found. In 1804 and 1805 his condition became so adverse that in his despair he turned to his chemical ability for aid. His experimentation led him to believe that he had found a new way to make paint. He discovered that by treating litharge, a substance very much like white lead, and mixing it with varnish and heavy spar, a paint was made superior to any on the market. He induced a friend to invest one thousand dollars with which he obtained a building, equipped it and hired a workman. He soon found that his experiment when conducted on a large scale did not bring the desired result. His partner soon withdrew while he continued experimenting for some time and then gave it up. This adventure set him back seven hundred dollars. The owner threatened suit if the back rent of two hundred sixty dollars was not paid. He was obliged to dispose of his library for three hundred dollars. In his desperation he was pursuaded by a friend to make a patent medicine pill and under a Greek name sell it in Russia. It would have taken less persuasion to take his own life than to consent to this plan. In desperation he consented. He prepared an article advertising this product under the title of "Eugone." He wrote this advertisement in French since he was ashamed to write in

German. In the article he described the practice of medicine as conducted among medical men. After the contract for publication was completed the publisher insisted that a German translation be made. Burdach refused but when the publisher threatened that he would have it translated, he had to consent. Burdach for the first time in his life really knew what fear was. He knew that this article would take away his chance to obtain a professorship in Germany. At the time the article went to press he received word that he was being considered as professor at Erlangen. He at once took steps to stop publication of the article but the publisher held him to his contract. The paper appeared before the decision at Erlangen was made and soon Burdach received word that as result of the publication he could no longer be considered as a candidate for Erlangen.

In October of the same year his book on "Diatetik" was published and in the Forword he gave the reasons and excuses for the publication of the "Eugone." This apparently saved him from complete ostracism. Many of the notables soon forgot and did not hold it against him. The good will of many of his friends helped him to regain confidence.

In spite of his struggle he saw to it that his family life was kept as sweet as possible. He did not despair and it seems that some way was always found out of his difficulties. As soon as a little money found its way into his purse he was not afraid to spend it on his family. On holidays and especially at Christmas he found a childlike interest in preparing surprises for his family. Thus at Christmas 1805 he published a small book on Apoplexy using as a basis the pathological material of the brain which he had collected. Again on the following Christmas he published a book in honor of his family entitled "A Pocket Receipt Book for Physicians."[12]

On top of all of his trouble he had to endure the sorrow of losing his daughter in January of 1808. She was the life of the home. Burdach's spirit was almost broken. His literary activity saved him from despair, and soon better times were in store. During these years he kept at his literary undertakings. In 1806 he published a book on the brain,[13] and one on recent discoveries in Medicine.[14] In 1807 his "System of Medicine" appeared.[15]

During the same year he was made assistant professor at Leipzig, at which occasion he wrote a dissertation on the effects of various caustic substances on the human body.[16] He plotted out areas in his forearm and applied potassium hydroxide, sulphuric acid, silver nitrate, etc., to the different areas and then noted the effects and healing processes. One of these which was too close to the wrist became infected and left an ugly scar.

Burdach's finances gradually improved. He obtained the position of charity physician of the city which brought a small salary. In January he received one hundred dollars bonus from the Government and in June one hundred and fifty dollars as an assistant professor's salary.

His publications continued.[17] In 1808 his "Text on Pathology"[18] appeared, and two years later his Physiology.[20] He translated and reedited many other books during this period.

In all of his literary endeavors he showed remarkable powers for systemic organization while the content was a collection of known facts and theories.

Because of his ability to systematize he was approached to prepare an encyclopedia of medical knowledge. Because it was to bring him a nice sum of money he undertook it and published it in three volumes which appeared in 1810, 1811, 1812 respectively.[22]

In December 1809 the University celebrated its Four hundredth Anniversary for which occasion Burdach wrote "Der Organismus Menschlicher Wissenschaft und Kunst."[19]

In the summer of 1808 he was requested to write an introduction to a review of medical literature which Hecker was to prepare. After Hecker had prepared about

40 pages he gave up the project. The publisher requested Burdach to finish it. Because he was promised enough money to enable him to take his family for a half year visit to Vienna he undertook it. The review was published in May 1810 in two volumes totalling 1634 pages.[21] Thereupon he left for Vienna with his family and did not return until the latter part of October.

In January 1811 Professor Rosenmüller inquired whether Burdach would consider a call to Dorpat as Professor of Anatomy, Physiology and Legal Medicine. Burdach had been waiting for eleven years for a Professorship and therefore wasted no time in returning an affirmative answer. Shortly after he received the appointment at a salary of twenty-five hundred rubels.

In a letter to the officials to whom he was responsible for his position at Leipzig, he asked for leave from Leipzig stating that for eleven years he had requested a position of Professorial rank and had been denied it in spite of his productive literary life while others who were younger than he and had done little had received such positions. His request was granted.

Early in August Burdach and family started out for Dorpat via Berlin, Königsberg and Riga, and reached their destination on August thirty-first. They stopped several days at Berlin and Königsberg to visit the Universities. His visit at Königsberg was profitable for him as it resulted in his call there three years later.

Burdach's stay at Dorpat was pleasant. The University life was freer than in Germany. He had the freedom to conduct his work as he desired. Furthermore, he was held in much higher esteem by the public than at Leipzig. Financially he was so fixed that he had no worries. His wife took care of all the money matters and he spent all of his time at his duties. Most of the time he carried no money with him. The attendance at his lectures was large. In his course on "The History of Life" he had 60 students and in his other courses from 23 to 26. The total attendance at Dorpat was 225.

Burdach was an enthusiastic lecturer. In anatomy he used dissected preparations for demonstrating his lectures. Karl Ernst von Baer in his autobiography, however, lamented the fact that the students were not permitted to dissect at Dorpat. In order to stimulate interest Burdach organized a seminar or sort of Journal Club which proved to be very popular. Since certain prerequisites were necessary for membership some students were excluded and this caused hard feelings. Because of this and because of the jealousy of some of the faculty over Burdach's popularity and because Burdach had failed to ask for permission to create such an organization, the University authorities brought pressure which resulted in a voluntary dissolution of the organization.

From a literary standpoint Burdach was very productive before his arrival at Dorpat. He had written many books while at Leipzig but all of these were based on the work of others. At Dorpat he began investigation of his own.

His chief investigation was on the brain. He had previously gathered much information and had written two books on the subject but now he made detailed dissections of his own on both the adult and embryo brains. He also began the study of embryology and gave lectures on the subject. He prided himself that the embryologists Pander, and Von Baer first studied embryology under him.

The results of his other investigations at Dorpat he published in his "Anatomische Untersuchungen" in 1814.[23]

In the Summer of 1813 he went to Petersberg where he visited Drs. Rehmann and Hausenshild. Rehmann since former years had been a very close friend of his. Both of these friends wanted Burdach to accept a call to Petersberg but he had conceived a firm desire to go further toward the South and toward his homeland when next he made a move and so could not accept their invitation.

On his return to Dorpat he obtained several German papers from which he learned of the death of Professor Kelch of Königsberg. He at once wrote to Königsberg stating that he would consider a call to Königsberg if they would give him a salary of one thousand dollars, the title of Hofrath, and a suitable anatomical building. This was a daring request where he knew that Professor Kelch had received a salary of only three hundred dollars. However, his request was granted. He closed his lectures at Dorpat on January fourth, 1814 and started for Königsberg on February twelfth.

Königsberg still called herself the Capitol of Prussia, but her title found justification only in the memory of her past. The city as well as the university had been greatly neglected and left to shift for itself. The German Government took greater interest in the universities closer to the heart of Germany. Burdach, therefore, found conditions at the university far from satisfactory. The anatomical building was ready to tumble. All it contained was two very defective skeletons and a dummy which was used by the surgeons on which to practice the art of bandaging.[25]

Burdach was not discouraged but at once completed all the formalities necessary to become a member of the faculty. One of these duties was to present a dissertation. The paper which satisfied this requirement was entitled "Dissertation de primis momentis formationis foetus."[24]

Thereupon, he at once prepared a complete plan for an anatomical institute which he sent to the "Ministerium." He did not succeed in obtaining what he wanted at once. The government tried all kinds of substitutes. Burdach, however, insisted on a building that would meet the requirements for a progressive anatomical department.[26] So persistent was he that November thirteenth, 1817 saw the dedication of the building. Burdach was the chief speaker and his subject was "Ueber die Aufgabe der Morphologie."[27]

As prosector Burdach was fortunate to obtain Karl Ernst Von Baer. Baer was an enthusiastic worker and Burdach recognized in him rare qualities. He, therefore, did not regard Baer as an assistant but rather as his equal. It was Burdach who saw to it that Baer was advanced rapidly. In 1821 Baer was made Professor of Anatomy but still carried on the duties of prosector. In 1826 Burdach relieved Baer of the prosectorship and gave it to his son Ernst Burdach. In 1826 Burdach further honored Baer by turning over to him the directorship of the anatomical institute.

The period of 1814 to 1830 was the most outstanding of Burdach's life. He gained wide recognition from his work[28–37] and did much for the University as well as for Königsberg itself. He was active in public affairs but did more by gaining the confidence and support of the Government in building up the Department of Anatomy.[29]

As can be seen from the list of his publications he was very active as a contributor to the science of medicine. The most outstanding of his researches was his work on the brain and spinal cord which appeared in three volumes in 1819, 1822 and 1826.[30] In it he gave an accurate description of the individual parts of the central nervous system and this, Burdach himself felt was the most important aspect of the book. He was the first to explain the relationship of the olive to its capsule and stalk, the lenticular nucleus and its capsule and he also presented a clearer conception of the structure, distribution and function of the fasciculus cingulum, fasciculus uncinatus, fasciculus longitudinalis inferior, fasciculus arcuatus and fasciculus cuneatus than had been given before. The latter fasciculus is also known as the "Column of Burdach." Rosenthal had described this bundle and had designated it as the lateral bundle of the posterior funiculus. He thought that it ended in the cerebellum. Burdach showed that some of its fibers went to the cerebellum by way of the external arcuate fibers and inferior peduncle of the cerebellum, but that the greater number of fibers passed as an internal arm lateral and parallel to the aqueduct of Sylvius to the cerebrum. He failed to recognize its decussation or at least did not say anything about it. In a separate note he stated that he did note some decussating fibers in close relationship with the internal arm and he was at a loss as to whether some of these fibers came from this tract or whether they belonged to another pathway. He ends with the question "Might it be possible that these decussating fibers come from the cuneate fasciculus and join the pyramidal tract?"

In 1826 he was given a leave of absence and four hundred dollars for travelling expenses. He visited all the important universities of Germany and France. His visits with Schönlein, Sommerring, Bojanus, Tiedeman, Puchelt, Cuvier, Magendie, Dollinger, and Gall were of greatest interest to him. His visit with Gall is of special interest. When he first introduced himself to Gall he was asked to repeat his name. Gall then asked him whether he was the author of the book on the brain, and then called out "And you visit me?" Thereupon he stepped over to his desk and picked up the book and said "Here I bring this devilish Burdach." In the book Burdach stated that Gall's work was based too much on theory and not on fact. Gall was a phrenologist and at once began to analyze Burdach's head. At a party Gall produced the pictures of Newton, Euler, Laplace and Lalande and insisted that the heads of these men were very similar to that of Burdach. He concluded emphatically that Burdach was a mathematical genius. He begged Burdach to permit him to make a case of his head. Burdach consented but the model was so unnatural that Burdach never showed it to anyone.

A still more voluminous piece of work was his six volume Physiology totalling 4055 pages.[33] His plan was to complete ten volumes but his wife died in 1838 at the time when he was working on the sixth volume. This loss disturbed him so profoundly that it was with considerable effort that he completed the sixth volume. When this was completed he could muster no more strength to continue the series. From the bibliographic list it can be noted that he received contributions for his physiology from a number of anatomists and physiologists who are mentioned as co-authors. Karl Ernst Von Baer wrote the greater part of the Embryology for Volume II. Burdach was a crank on systematizing and so took the liberty to make changes in a number of places without consulting Baer. Baer resented this severely. Besides this Burdach took the liberty of giving a preliminary account of Baer's most recent discoveries before Baer had considered them sufficiently ripe for publication. Baer was so furious that he without Burdach's knowledge published his contribution together with additions and modifications under the title "Uber die Entwicklungsgeschichte der Thiere." In his preface he excused the appearance of the book by stating that Burdach had changed his contribution to such an extent that it did not carry his ideas. In his autobiography Burdach shows no hard feeling against Baer but to the contrary holds him in high esteem, stating only that Baer had a very sensitive nature and often allowed his feelings to get the best of him. Between the years of 1818 to 1824 Burdach published his other researches in the form of seven yearly reports.[29]

In 1830 a very severe cholera epidemic raged throughout the entire eastern part of Europe. As the epidemic spread nearer and nearer to Königsberg the city officials took drastic measures to combat it. They prohibited food supplies coming to the city from regions where the epidemic raged. This soon shut off all imports into the city. Then too, after the first case broke out in the city they forbad under penalty of imprisonment anyone to enter any house in which the disease has gained entrance. These rules were made without consulting physicians. Burdach and three other physicians were appointed on a commission to consult with officials for further control of the epidemic. Burdach at once took steps to combat the rules and regulations which had been put into force. First of all he was asked to write an article for the public telling them what they could do to ward off the disease.[37,38] Secondly, he impressed upon the officials the fact that good wholesome food was one of the best means of keeping up resistance for combating the disease. He urged the city to see to it that the poor had enough good food to eat even though they could not pay for it. He told them that it was better to import food even from where the epidemic was raging than to cut off the city from food supply. Then too, he urged the officials to stop publishing scenes of horror from epidemic stricken regions because fear like lack of nourishing food lowered the body's resistance. Burdach found cases where people actually went to bed thinking that they were afflicted with the disease and he found them weak and sick from nothing but fear. Burdach organized the physicians of Königsberg with a central meeting place where all the physicians could come every morning between ten and twelve o-clock to report all new cases and to discuss further problems of control. The city was notified that all calls for physicians should come to this central place. Physicians took their turns in answering night calls. This gave the other doctors not on duty a chance to gain their necessary rest without fear of being disturbed. Under this able propaganda the dreaded disease did not prove as disastrous as in other places.

During the epidemic Burdach with the aid of other physicians published a cholera paper which was printed twice a week. The following year these papers were republished in book form.[39]

As already mentioned Mrs. Burdach died in 1838. This loss was severe for Burdach, and he never regained the enthusiasm and strength for work that he previously possessed. Besides finishing his Physiology he wrote an 888 page Psychology entitled "Blicke ins Leben"[43] and several smaller papers and reports.[42,44,45,46] His strength failed for further scientific work. It was in this condition about the year 1845 that Burdach finished the last part of his Autobiography entitled "Ruckblick Auf Mein Leben."[47] In a footnote the publisher states that the first part of the autobiography was well arranged and ready for printing, the rest of it was not proofread and in poor order while the last part of it was only in the form of scattered ideas which the publisher was obliged to arrange and organize.

In the winter of 1844–45 when Burdach wrote the last chapter of his book he was well aware of his rapidly vanishing powers. Earlier he had stated that he could hardly consider himself a fully educated man since he was not afflicted with hemorrhoids, hypochondria and other diseases of educated folks. Furthermore, he had taken active interest in public affairs which was not a characteristic of other educators.[48] He was always active and happy and did not know what it meant to be handicapped with some ailment which kept him from activity. When, therefore, in 1844–45 his powers suddenly began to vanish he felt his losses very keenly. His muscular power diminished rapidly, he became forgetful, irritable and his thought incoherent. He writes that a malady, very likely a softening of the upper part of the spinal cord, developed in him which at first manifested itself in an anesthesia of the ulnar nerve endings, intermittent dizziness, and then in a paralysis of his left arm and leg. Someone in a footnote states that this malady was very likely a focal softening of the cerebrum. The entire last chapter is a lament over the discomfort of being incapacitated. Toward the end of his writing, however, he seems to find comfort and peace in his meditations on religion.

During the first half of 1847 he had intermittent attacks which are described in the publishers note as suggestive of brain congestion. These usually subsided within two or three days after a cathartic was given. On July tenth, 1847 he was afflicted with such an attack from which he did not recover. He died on July sixteenth, 1847 at the age of seventy-one years.

In his last Will and Testament Burdach

gave explicit instructions for his burial. The substance of a few of these requests may be of interest.

1. The notice of his death should be as short and specific as possible. Funeral speeches and long notices he considered as lies.

2. His coffin should be a simple, narrow, wooden one either painted black or covered with black cloth.

3. The funeral should take place early in the morning while all of nature is still silent. Only his children and grandchildren should be permitted to accompany him to his grave.

4. Since he was not pulled about by four horses during his life, horses should not pull him after his death. He expressed the wish to be carried to his grave.

5. His coffin should be placed in the grave of his wife and on top of hers.

The funeral took place on July twenty-first at six A.M. His requests were followed as closely as possible.

A large number of friends, however, would not heed his request, and gathered at his grave to pay their last homage to him. A local minister spoke a few words and a choir of Masonic brothers sang several songs.

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# ROBERT BURNS, HIS MEDICAL FRIENDS, ATTENDANTS AND BIOGRAPHER*

*By* H. B. ANDERSON, M.D.

TORONTO

ONE hundred and twenty-seven years have elapsed since Dr. James Currie, F.R.S., of Liverpool, published the first and greatest biography of Robert Burns.

Dr. Currie had met the poet but once and then only for a few minutes in the streets of Dumfries, so that he was entirely dependent on others for the information on which he based his opinions of the character and habits of Burns. A few days after Burns' death he wrote to John Syme, "Stamp-office Johnnie," an old college friend then living in Dumfries: "By what I have heard, he was not very correct in his conduct, and a report goes about that he died of the effects of habitual drinking." But doubting the truthfulness of the current gossip, he asks Syme pointedly "What did Burns die of?" It is easily seen why he should have gone to Syme for information as Burns had lived for a time over the stamp office and it was known that he and Syme were intimate. Syme, therefore, above all others is responsible for the opinions which Currie afterwards expressed as to Burns' habits; and when the biography was published, it was to Syme that Currie wrote for reassurance that he had done justice to his subject. It is difficult to discern the reason for Syme's attitude, but apparently the cause of the poet's untimely death was a mystery for which some explanation had to be proffered.

Two incidents, however, discredit Syme as a dependable witness: the sword incident, on the occasion of his reproving the poet regarding his habits, of which there are several conflicting accounts, and his apocryphal version of the circumstances under which "Scots Wha Hae" was produced during the Galloway tour. In regard to the latter incident, the letter Burns wrote Thomson in forwarding the poem effectually disposes of Syme's fabrication.

As Burns' biographer, Dr. Currie is known to have been actuated by admiration, friendship, and the benevolent purpose of helping to provide for the widow and family; and it is quite evident that he was willing, if not anxious, to undertake the task. He was especially concerned that Burns' good friend, Mrs. Riddel of Woodley Park, should not be chosen. Therefore, the opinions to which Currie gave currency in the biography, were no doubt received with sorrowful acquiescence by many who would have disputed them, had they emanated from a less friendly source.

Subsequent writers have depended largely upon the material in the way of manuscripts, letters, and information furnished by the poet's family, friends, Masonic brethren and correspondents (along with not a little gossip and tittle-tattle of residents of Dumfries and other casual acquaintances), placed at Currie's disposal, and have thereby been influenced in accepting his conclusions. However, there has been a gradual accumulation of information and criticism, pointing out inaccuracies and statements disputed by reliable witnesses, leading to a growing conviction that Dr. Currie unwittingly, but nevertheless grossly, misrepresented the habits and character of the Scottish poet.

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* An address delivered to The Toronto Burns' Society, November, 1926.

I had promised to address the Toronto Burns' Society on the subject some years ago, but delayed until my return from an anticipated visit to Scotland in 1925, during which I visited places associated with Burns' life.

On my return I noticed in the *Manchester Guardian* the review of a volume by Sir Crichton Browne, who had investigated the sources of information, and, following a process of reasoning similar to my own, concluded as I had, that Burns died of rheumatism and heart disease, and not from alcoholism.

In a letter from the Rev. Wm. Muir Auld, D.D. of Cleveland, he recalls our conversations on the subject about 1920–1921, when he urged me to publish my investigations: "Otherwise, you may have the mortification of having to quote another." Rev. Dr. Auld is related to the family of the Rev. Wm. Auld of Mauchline, who figures in "The Kirk's Alarm" and others of Burns' satirical poems, and is himself a well-known student of Burnsiana.

Dr. Alexander Wood.

Many who have pondered on the activities and read the poems and letters of Burns find it difficult to believe that these are consistent with a life of drunkenness and debauchery; or that his early death is satisfactorily explained by alcoholism. The question therefore naturally arises: If Burns did not die from alcoholic excess, what was the real cause which lead to the death, at thirty-seven years of age, of a man of his physical strength and vigor? A positive denial must be based on convincing data, establishing an intelligent diagnosis. This was the problem which presented itself to me many years ago and led me to consider the sources of information, if such might be traced, which would afford an answer.

On reading Allan Cunningham's "Complete Works of Burns" one was surprised at the numerous references in the poet's correspondence, to his health at various periods of his life. These, collected and pieced together, furnish a clinical record leading to the inevitable conclusion that Dr. Currie's opinions were based on insufficient and unreliable information and that Burns died from rheumatism and heart disease.

Burns was born January twenty-fifth, 1759, the eldest of the seven children of William Burness and Janet Brown, honest, thoughtful, religious Scottish peasantry. The roof of the "auld clay biggin," built by his father, was blown off a few nights after he was born and he himself was carried through the storm to a neighbour's house, a fitting prelude to the eventful drama of which the closing scene was in the small house in the Mill Vennell, Dumfries, thirty-seven years later.

The medical profession figures much less prominently in Burns' writings than that of either law or divinity. Neither were his social intimacies as frequent and close with the doctors as with the lawyers and the clergy. In the convivial gatherings of which he wrote with poetic coloring:

> I've been at drunken writers' feasts,
> Nay, been bitch-fou 'mang godly priests'

the representatives of medicine were conspicuous by their absence. It was the lawyers and "new licht" ministers who enlisted the inspired ploughboy in the controversy that was then dividing the more liberal from the rigidly orthodox members of the Kirk in the West of Scotland. While his onslaught on the "auld licht" with the keen satire and unanswerable humor of the "Kirk's Alarm," "Holy Willie's Prayer," "The Holy Fair," and the "Twa Herds" spread the name and heightened the fame of the poet and set the countryside roaring, the author unfortunately inspired fear and wrath in the minds of a numerous and respected part of the community, which pursued him throughout his eventful career and added immeasurably to his troubles.

When the fighting spirit was aroused he might boast:

> The mair they talk I'm kenned the better,
> E'en let them clash,

yet in an opposite mood of extreme melancholy and regret, which was so common with him, he uttered the prayer:

> If I have wandered in those paths
> Of life I ought to shun,
> As something loudly in my breast
> Remonstrates I have done. . . .
>
> Where with intention I have erred
> No other plea I have;
> But Thou are good and Goodness still
> Delighteth to forgive.

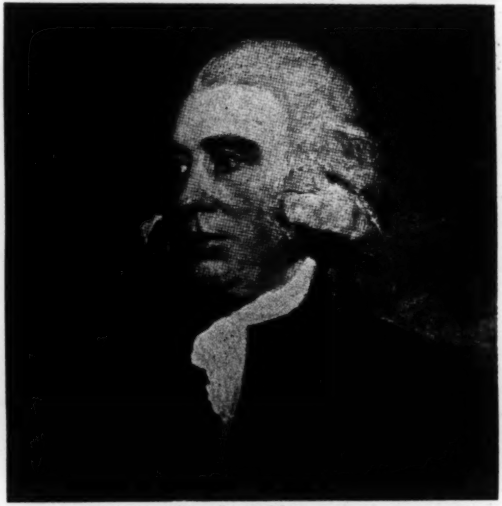
Burns may have suffered at times from wrong opinion, unwarranted criticism, ill advice and misrepresentation on the part of some of his medical friends, but it was certainly from no lack of loyalty or appreciation of his genius. The most democratic of the professions, in intimate contact with all classes of the community, good and bad, doctors are perhaps the most tolerant of human frailties since they can often trace them to hereditary, environmental, or physical causes.

Burns was at Irvine learning flax dressing in 1781, a rustic celebrity of twenty-two years known only to his companions and a few others as a rhymer, and there he made his first medical acquaintance, Dr. Hamilton, who assisted him in the publication of the first edition of his poems at Kilmarnock, five years later.

When his father, harassed by the misfortunes of his farming venture at Lochlea, was dying of consumption, the medical attendant was that excellent man and physician, Dr. John Mackenzie of Mauchline, who afterwards described so sympathetically the Burns' family circle. Attracted by the magnetic personality, and quickly perceiving the genius of the poet, he became his lifelong friend.

The family removed to the farm of Mossgiel, near Mauchline, in 1784, and Dr. MacKenzie introduced Burns to Professor Dugald Stewart, Professor of Philosophy in Edinburgh University, who invited him to dinner in company with Lord Daer, Lord Selkirk's son and heir, an event which he celebrated as that "ne'er to be forgotten day."

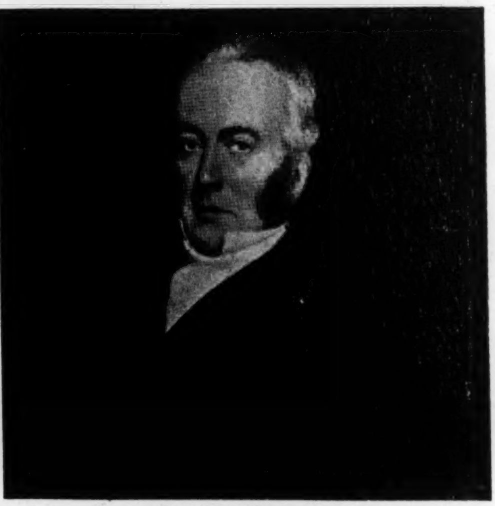
A more distinguished medical friend was Dr. John Moore, a Scotsman who had settled in London, the father of Sir John Moore, the hero of Corunna. At the instance of Mrs. Dunlop, the earliest patroness of Burns, Dr. Moore entered into correspondence with him during the Ellisland period. Moore, who was prominent in literary circles at this time, became an admirer, and advised him to familiarize himself with the classic mythology and the history of France and Britain, and otherwise assumed the rôle of critic and mentor. He urged him to abandon the provincial dialect and write in English; but happily the independent spirit and good sense of the poet prevented a transition so inadvisable. It was to Moore that Burns wrote the autobiographical letter later so extensively used by his biographers. The correspondents never met.



DR. JOHN MOORE.

On his second visit to Edinburgh, having sprained his knee in August, 1787, Burns was attended by Dr. James Gregory, successor to

Cullen as Professor of Medicine, and the most eminent physician of his day in Edinburgh. He was the author of "Conspectus Medicinae Theoreticae" (though he is now best known by the rhubarb powder which bears his name). The first, or Latin, edition of the Conspectus appeared in 1789, and altogether ten editions in Latin and English were published. Gregory was learned, able, and popular, though somewhat irascible. He was a literary critic and commended the poems of Mrs. John Hunter to Burns. Gregory criticized especially "The Wounded Hare," and Burns exclaimed "Dr. Gregory is a good man, but he crucifies me."


Dr. Wm. Maxwell.

Dr. Alexander Wood, "lang Sandy Wood, one of the best hearted of men," was the surgical consultant with Gregory. It was he who urged Burns to write the "Elegy on the Death of Lord President Dundas," and personally delivered the poem and accompanying letter to his Lordship's son. Burns was incensed by the latter's apparent lack of appreciation and attention: "He took no more notice of my poem or me than I had been a strutting peddler." It was Wood who successfully recommended the poet for an appointment in the Excise.

When Burns left Ellisland, to live in Dumfries, he made the acquaintance of Dr. William Maxwell, whose father had been out with Prince Charlie in '45. Maxwell was a medical student in Paris at the time of the execution of Louis XVI. Both Burns and Maxwell were under suspicion of sympathy with the French Revolution and Burns feared he would lose his post in the Excise; but when the war broke out between Britain and France in 1793, he joined the Dumfries Volunteers and further showed his patriotism in the stirring poem:

Does haughty Gaul invasion threat?
Then let the loons beware, Sir;
There's wooden walls upon our shore,
And volunteers ashore, Sir.
The Nith shall run to Corsinson
The Criffel sink in Solway,
Ere we permit a foreign foe
On British ground to rally, etc.

It was to Maxwell he addressed the well-known quatrain on the recovery of Miss Jessie Staig, the Doctor's patient:

Maxwell, if honour here you crave,
That merit I deny,
You save fair Jessie from the grave!
An angel could not die.

Maxwell attended Burns in his last illness. With Syme and McMurdo he enlisted the services of his colleague, Dr. James Currie, and furnished him with information regarding the poet's illness and death. He also helped to collect the material for the "Life of Burns" which Currie, after four years' hard work, published in four volumes in 1800, and by which £1500 was raised for the support of the widow and family. Maxwell therefore shares with Syme the responsibility for the misinformation given to Currie.

Dr. James Currie (1756–1805) was himself a literary man of repute, a Scotsman, who had settled in Liverpool and acquired a distinguished place in his profession. As a physician he is best known for having introduced the clinical thermometer into practice and the use of cold baths in the treatment of fever. A Liberal, an advocate of the abolition of slavery, and an ardent temperance reformer, he died of tuberculosis and heart disease. The latter was due to a severe attack of rheumatism from which he suffered while a student in Edinburgh. His "Life of Burns," though with all kindliness of intention and the best of motives, has unfortunately been the basis of all subsequent writings which have attributed the poet's early death to drunkeness and debauchery.

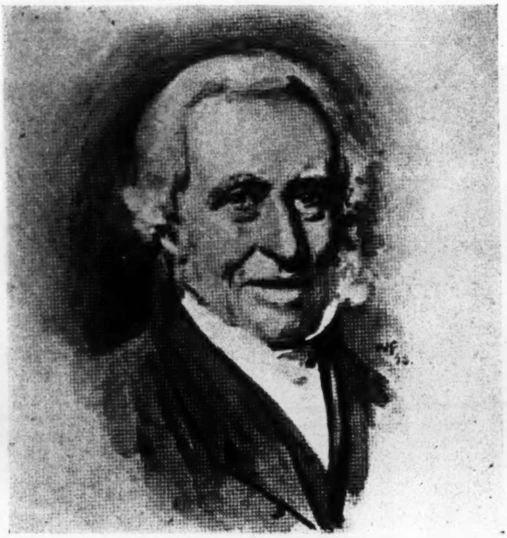
Currie states that "though by nature of an athletic temperament, Burns had in his constitution the peculiarities and the delicacies that belong to the temperament of the genius. He was liable from a very early period of life to that interruption in the process of digestion which arises from deep and anxious thought. Connected with this disorder of the stomach there was a disposition to headache, more especially about the temples and eyeballs and frequently accompanied by violent and irregular movements of the heart." He then traces the gradual decline in the poet's health: "Perpetually stimulated by alcohol in one or other of its various forms, the inordinate actions of the circulating system became at length habitual . . . and the powers of life began to fail." This circulatory disturbance referred to by Currie is certainly not symptomatic of alcoholism, but is readily explained as a sequel to rheumatism. "Upwards of a year preceding his death his temper became more irritable and gloomy, and he fled from himself into society of the lowest kind," and concludes "He who suffers the pollution of inebriation, how shall he escape other pollution?" These uncharitable and unwarranted insinuations are contradicted by fellow citizens of Burns' who were in frequent and intimate contact with the poet during the period to which Currie has reference. Apparently the statements, in so far as they are not mere assumption, were based on the misinformation of those who failed entirely to recognize the nature of Burns' disease, or on the idle gossip of busybodies.

Currie refers to the tendency on the part of men of genius to indulge in narcotic excesses, which "acting on the system of nerves so as to give a fictitious gaiety to the ideas of imagination, alter the effect of the external impression which we receive. Opium is chiefly employed for this purpose by the disciples of Mahammed and the inhabitants of Asia; but alcohol, the principle of intoxication in vinous and spiritous liquors, is preferred in Europe and is universally used in the Christian world." That he was an extremist is evident. "There are a great number of other substances which may be considered under this point of view. Tobacco, tea and coffee are of the number . . . and an enquiry into the particular effects of each on the health, morals and happiness of those who use them would be curious and useful."

DR. JAMES GREGORY.

It is not my purpose to picture Burns as a model of sobriety or to state that he was not, as was the custom of the times in which he lived, given to occasional excesses. He frequented convivial gatherings and celebrated these occasions in verse; he extolled the virtues of alcohol in some of his poems, and with poetic license undoubtedly exaggerated his own excesses. These follies represented the exuberance of an ardent spirit; but we have the testimony of intimate acquaintances, fellow citizens of Dumfries, and other men of unimpeachable character, which should acquit him of the charge of habitual drunkenness that destroyed his health and led to his early death.

Rev. James Grey, minister in Dumfries at the time, says "The truth is, Burns was seldom intoxicated;" Mr. Alexander Findlater, his superior officer in the Excise, who saw Burns frequently during the Ellisland and Dumfries periods and who was with him the night he died, states emphatically "I never beheld anything like the gross enormities with which he is now charged;" and Dr. Copland Hutchison is reported by Allan Cunningham: "I lived in Dumfries during the whole period that Burns lived there. I was much about and saw him daily, but I never saw him even the worse for liquor. He might drink as much as other men but certainly not more." Even Cunningham says "Burns was no tippler; he loved the excitement of company and to see the bottle circulate to others as well as to himself."



Dr. John MacKenzie.

Nanse Tinnock, "Poosie Nansie," the hostess of the Mauchline Howff, famed as the scene of "The Jolly Beggars," adds her testimony regarding Burns' habits when he was under great strain and temptation. (He was deserted for a time by Jean Armour; the marriage lines were burned by her father, who ordered him out of the house when he visited her after the birth of the twins. He was threatened with the law, and his passage was actually taken for Jamaica. Burns had boasted of toasting the Scottish members of Parliament at "Auld Nanse Tinnock's nine times a week.)" She exclaimed "The lad hardly ever drank three half-mutchkins under my roof in his life."

It is difficult to believe that a man who rode thirty or forty miles daily as a gauger, of whose work in the Excise no complaint was ever made; who superintended his farm, watched over the education of his children, interested himself in libraries, kept up a large correspondence, collected, rewrote or composed some two hundred and sixty songs with accompanying letters, the last less than a fortnight before his death, was debased and dying from alcoholism. "Tam O'Shanter," "To Mary in Heaven," "Scots Wha Hae," and the "Banks of Devon" show no evidence of having been written by a habitual drunkard and they were all composed at that period when bad habits were said to be undermining his health. The pride, spirit, and patriotism of this alleged drunkard were such that he indignantly refused to accept payment from Johnson for the immortal lyrics he was writing or adapting for "The Museum," even though he was in financial distress.

Through his own letters, his brother Gilbert, Professor Dugald Stewart, Rev. Dr. Hugh Blair, John Richmond, Professor Walker, Mrs. Riddel, Burns' wife and servants and others, his life and habits at Mt. Oliphant, Lochlea, Mossgiel and Mauchline, Edinburgh, Ellisland and the final years at Dumfries can be traced, and the testimony is against the doleful verdict of Currie.

Robert and Gilbert Burns had each an allowance of only seven pounds a year when on the farms of Lochlea and Mossgiel, a modest sum for riotous living!

A feeling of resentment toward those who gave to the world an erroneous impression of Burns is evident in a letter of Mrs. Basil Montagu, dated the twenty-fifth of February, 1843, in which she takes Cunningham to task for publishing "all the idle and disjointed chat which he could pick up about Robert Burns' and associating her name with it." She adds, "I never once saw Burns intoxicated, though the worthy member for Dumfries, and the good Laird of Arbigland and twenty more that might be named, were much more tipsy than Tam O'Shanter . . . I have told him more than twenty times that Burns always left a dinner party, if there were women, for the drawing-room long before any other man joined them . . . Poor Burns, misfortune pursues thee even to the grave! So it is with almost all great men; reverence keeps silent all who loved them and traducers take up the theme."

With what prescience this wonderful genius anticipated future events in his letter to Mrs. Dunlop from Edinburgh in 1787;

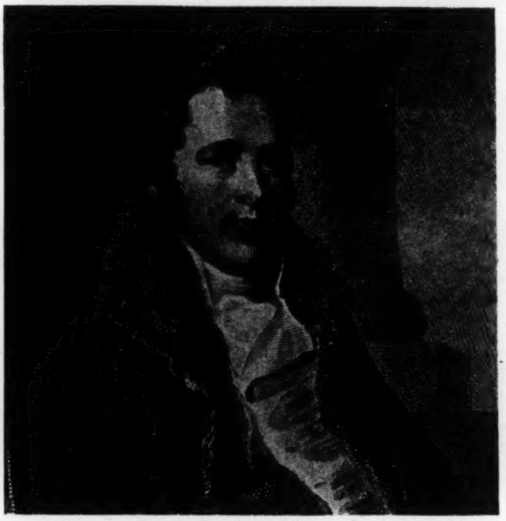
> When proud Fortune's ebbing tide recedes you will bear me witness that, when my bubble of fame was at the highest, I stood unintoxicated with the inebriating cup in my hand, looking forward with rueful resolve to the hastening time when the blow of calumny should dash it to the ground with all the eagerness of vengeful triumph.

The ever present fear was again expressed to Mrs. Riddel, a few days before his death, of the time "when no dread of his resentment would restrain them nor prevent malice or envy from pouring forth their venom to blast his fame."

A critical review of trustworthy information fortunately furnishes a medical history of the long illness that led to his death at thirty-seven years of age, which to my mind shows conclusively that it was rheumatism and endocarditis which, with almost equal certainty, had its inception in his childhood.

In extenuation of the mistaken diagnosis of Currie and Maxwell, it should be remembered that the relationship of rheumatism to heart disease was not widely known at that time, as this was first established by Matthew Baillie in 1786. Further, it is only within the past twenty-five or thirty years that growing pains, tonsillitis, chorea and infected teeth have been recognized as very frequently the cause of heart disease, especially in childhood. Clinical thermometers were not commonly in use at that time, so that slight febrile reactions were readily overlooked. As the discovery of the stethoscope by Laënnec was not until 1818, this valuable diagnostic instrument was not then available.

The poet's brother, Gilbert, supplies suggestive information regarding the beginning of his illness: "My brother at the age of thirteen assisted in the threshing of the crop of corn, and at fifteen was the principal laborer on the farm for we had no hired servants, male or female. The anguish of mind we felt at our tender years under these straits and difficulties was very great . . . . At this time [Mt. Oliphant, 1774], he was almost constantly afflicted in the evening with a dull headache, which at a future period of his life was to be exchanged for a palpitation of the heart and a threatening of fainting and suffocation in the night time."



JAMES CURRIE, M.D., F.R.S.

Burns evidently had another serious illness when he was engaged in the labor of flax dressing at Irvine in 1781. He wrote to his father:

My health is nearly the same as when you were here only my sleep is a little sounder, and on the whole I am rather better than otherwise though I mend by very slow degrees. The weakness of my nerves has so debilitated my mind that I dare neither review past wants nor look forward into futurity, for the least anxiety or perturbation in my breast produces the most unhappy effect on my whole frame . . . I am quite transported at the thought that ere long, perhaps very soon, I shall bid an eternal adieu to all the pains and uneasiness and disquietude of this weary life for I assure you I am heartily tired of it; and if I do not very much deceive myself, I could contentedly and gladly resign it.

In his Common Place Book under date of August, 1784, Burns has an entry: "When fainting fits and other alarming symptoms of a pleurisy or some other dangerous disorder, which indeed still threatens me, first put nature on the alarm." He then wrote "The Prayer in Prospect of Death."

O Thou, unknown almighty cause of all my hopes and fear,
In whose dread presence ere an hour, perhaps I may appear, etc.

John Richmond, with whom Burns lived at Mrs. Carfrae's in Baxter's Close on his first Edinburgh visit in 1786, says that "the poet was so knocked up by his walk from Mauchline to Edinburgh, that he could not leave his room for the next two days."

Prof. Dugald Stewart, in writing to Dr. Currie of Burns' first winter in Edinburgh states:

> He told me indeed himself that the weakness of his stomach was such as to deprive him of any merit of his temperance. I was, however, somewhat alarmed . . . when he confessed to me the first night he spent in my house . . . that he had been much disturbed in bed by a palpitation of his heart, which he said was a complaint to which he had of late become subject.

On the border tour with Ainslie, May, 1787,* there is an entry in his journal: "I am taken extremely ill with strong feverish symptoms . . . embittering remorse scares my fancy at the gloomy forebodings of death."

A letter which Burns wrote to Dr. Moore from Mauchline, August second, 1787, is of especial interest: "I am here under the care of a surgeon, with a bruised limb extended on a cushion: a drunken coachman was the cause. I got my fall on Saturday and I am getting slowly better," etc. Three months and a half later he wrote from Edinburgh to Miss Chalmers: "For the first time, yesterday I crossed the room on crutches."

January twentieth, 1788, he wrote Clarinda of "an old indisposition accompanied by much to make me good for nothing, so that I can scarcely hold up my head."

January twenty-first, 1788, he wrote from Edinburgh to Mrs. Dunlop: "After six weeks' confinement I am beginning to walk across the room. They have been six horrible weeks, anguish and low spirits make me unfit to read, write or think."

In a letter to Rev. John Skinner from Edinburgh, February fourteenth, 1788, he writes: "I have been a cripple now near three months, though I am getting vastly better" . . . He refers to the illness following the injury to his knee, for which he was treated by Dr. Gregory and Dr. Wood, and the expression, as we know, is one commonly used by persons suffering from rheumatism. How unfortunate Gregory and Wood left no account of this illness!

He wrote to Mr. Cruickshank from Mauchline, March third, 1788: "My unlucky knee is rather worse and I fear for some time will scarcely stand the fatigue of my Excise instructions."

His despondency and anticipation of death are evident again in a letter to Mr. Robert Muir, Kilmarnock, March seventh, 1788: "If we lie down in the grave, the whole man a piece of broken machinery, be it so: at least there is an end of pain, woes and wants."

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* It is well known that many of the dates attached to Burns' letters are only approximate, having been added by Dr. Currie.

Writing Richard Brown from Glasgow, March twenty-sixth, 1788, he said: "Watching, fatigue, and a load of care almost too heavy for my shoulders have in some degree actually fevered me."

April twenty-eighth, 1788, he wrote to Mrs. Dunlop from Ellisland: "I have slept in an apartment in which the force of the winds and rains were only mitigated by being sifted through the numberless apertures in the windows and walls. In consequence, I was Sunday, Monday and part of Tuesday, unable to stir out of bed with all the miserable effects of a violent cold." This was during the building of his house at Ellisland when he slept in it before it was finished.

August, 1788, he wrote another letter to Cruickshank from Ellisland; "I fear my knee will never be entirely well, and an unlucky fall this winter has made it still worse." The trouble with his knee therefore lasted more than a year. Evidently the injury to the knee localized the rheumatism in that joint, whence it spread to other parts of the body.

Another phase of his illness is referred to in a letter to William Creech from Ellisland, May thirtieth, 1789: "I had intended troubling you with another long letter, but at present the delightful sensations of an omnipotent toothache so engrosses all my inner man as to put out of my power even to write nonsense . . . Fifty troops of infernal spirits are driving post from ear to ear along my jaw bones."

About this time he wrote the "Address to the Toothache," from which it is evident that he had a personal knowledge of that disease, and it is scarcely necessary at the present time to emphasize the relationship of infection of the teeth to rheumatism:

My curse upon thy venomed stang
That shoots my tortured gums alang;
And through my lugs gaes many a twang
Wi' gnawing vengeance;
Tearing my nerves wi' bitter pang
Like wracking engines.

When fevers burn or ague freezes,
Rheumatics gnaw or cholic squeezes;
Our neighbour's sympathy may ease us
Wi' pitying moan;
But thee, thou hell of all diseases
Aye mocks our groan.

He wrote to Mrs. Dunlop, September thirteenth, 1789: "I am groaning under the miseries of a diseased nervous system. What is man? Today in the luxuriance of health, exulting in the enjoyment of existence; in a few days, perhaps a few hours, loaded with conscious, painful being, counting the tardy pace of the lingering moments by the re-percussions of anguish."

At this time he had serious financial worries: "With the task of the superlatively damned to make one guinea do the business of three."

February twentieth, 1790, to Clarinda: "I have been ill the whole winter, incessant headache, depression of spirits and deranged nervous system."

In October, 1791, Burns left Ellisland to live in the cramped quarters of the Wee Vennel in Dumfries. He apparently had better health for the next three or four years, at least there is no further reference to ill health until the end of 1793, when he wrote to Lady Glencairn of the "cheerless gloom and sinking despondency of diseased nerves," etc.

February, 1794, he wrote to Cunningham: "For these two months I have not been able to lift my pen. My constitution and frame were *ab origine* blasted with a deep taint of hypochondria which poisons my existence. My feelings at times could only be envied by a reprobate spirit listening to the sentence that dooms it to perdition."

June twenty-fifth, 1794, he wrote to Mrs. Dunlop: "To tell you that I have been in poor health will not be excuse enough, though it is true. I am afraid that I am about to suffer for the follies of my youth. My Medical friends threaten me with a flying gout." Considering the previous and subsequent history of his case, it seems altogether probable that he had a recrudescence of the rheumatism at this time.

Cunningham states that, during 1795,

"Burns was fallen off indeed, not in brightness of intellect, but in vigor and health. His walks were shorter, his rests more frequent; his smile had something of melancholy in it . . . and among the sons of men he looked like one marked out for an early grave." These symptoms are obviously more suggestive of heart disease than of alcoholism.

January thirty-first, 1796, after the death of his friend Riddel, of Friar's Carse, Burns wrote to the widow: "The autumn robbed me of my only daughter, a darling child . . . I had scarcely begun to recover from the shock when I became myself a victim of a most severe rheumatic fever and long the die spun doubtful, until after many weeks of a sick bed, it seems to have turned up life and I am beginning to crawl across my room." Apparently he was confined to bed, or at least to the house, from about October, 1795, to January 30, 1796.

The disease had now declared itself in so definite a form that there can be no further doubt regarding the diagnosis, and his friends, as well as himself, became alarmed.

Currie states that "From October, 1795, to the January following, Burns was confined to the house by an "accidental complaint." We have Burns' own definite statement in contradiction that he suffered from an attack of rheumatic fever which began the previous October. Currie continues: "A few days after he began to go abroad he dined at a tavern and returned about three o'clock on a very cold morning, benumbed and intoxicated." This was followed by an attack of rheumatism which confined him about a week. "His appearance now began to fail; his hand shook and his voice faltered on any exertion or emotion; his pulse became weaker and more rapid, and pain in the larger joints, and in the hands and feet deprived him of the enjoyment of refreshing sleep." Medical men assuredly will recognize in this description the symptoms of rheumatism and heart disease rather than of alcoholism. Currie was evidently in error in his statement of the time when his health began to fail, as Cunningham had noticed it in the previous year. He further entirely overlooked or misrepresented the attack of rheumatic fever in October, 1795. "About the end of June he was advised to go into the country and, impatient of medical advice as well as every control, he determined for himself to try the benefits of bathing in the sea." This statement is not in accord with Burns', who says he went to the Brow on Maxwell's advice.

February, 1796, he had a relapse of the rheumatism, apparently following the Globe Tavern incident referred to by Currie. That a patient who was just beginning to crawl about after a serious attack of acute rheumatism, which confined him to bed for three months, should have attended a dinner is convincing evidence that neither Burns nor his advisers understood the nature of his illness. It is certainly no cause for wonder that he should have fainted, fallen in the snow and suffered a relapse, and it is an arbitrary presumption to attribute such consequences to alcohol.

He was still under the care of Dr. Maxwell. A little later he wrote to Mitchell of the Excise: "Rheumatism, cold and fever have formed to me a terrible combination; I close my eyes in misery and open them without hope."

He was in financial distress and threatened by his creditors. About the end of June, under Maxwell's advice, he went to the Brow, a cold, bleak watering place on the Solway, to try the effects of sea-bathing. This unfortunate treatment, as one would expect, aggravated the disease.

Mrs. Riddel, who was residing near the Brow at the time, invited him to her house, sending her carriage for him as he was unable to walk. She says: "The stamp of death was impressed on his features." His first words to her were, "Well, Madam, have you any commands for the other world?" His looks were hollow and ghastly; a tremor pervaded his whole frame; his tongue was parched.

July seventh, Burns wrote to Cunningham: "In these eight or nine months I have been ailing, sometimes bedfast, sometimes not. For the past three months I have been tortured with an excruciating rheumatism which has reduced me to nearly the last stage. Pale, emaciated, so feeble as to occasionally need help from my chair."

He wrote to Mr. James Johnson from Dumfries, July fourth: "The hand of pain and sorrow and care has these many months lain heavy on me . . . This protracting, slow, consuming illness which hangs over me will, I doubt much, my dear friend, ever arrest my sun before he has well reached his middle career."

A few days later he wrote to his brother, Gilbert: "I am dangerously ill and not likely to get better . . . An inveterate rheumatism has reduced me to such a state of debility . . . that I can scarcely stand on my legs."

He wrote to Mrs. Dunlop from the Brow, July twelfth:

> An illness which has long hung about me in all probability will speedily send me beyond that bourne whence no traveller returns . . . The remembrance [of his correspondence with her] yet adds one more pulse to my poor palpitating heart. Farewell!
>
> He grew feverish on the 14th day of July, felt himself sinking, and longed to be home . . . He returned from the Brow to Dumfries, July 18th, in a small spring cart. The ascent to the house was steep and the cart stopped at the foot of the Mill Hole Brae. When he alighted he shook much and stood with difficulty. He seemed unable to stand upright. He stopped as if in pain and walked tottering towards the house. (Cunningham.)

To the anxious enquiries of citizens of Dumfries, Dr. Maxwell shook his head, "He cannot be worse." John Gibson, a fellow member of the Dumfries volunteers, called on him. Burns appealed to him "John, don't let the awkward squad fire over me." "A tremor," says Maxwell, "pervaded his frame; his tongue, though often refreshed, became parched; his mind, when not roused by conversation, sank into delirium." On the second and third days after his return from the Brow the fever increased and his strength diminished. The fourth day, July twenty-first, 1796, he died at the age of thirty-seven years and seven months.

Even the death scene is misrepresented by Cunningham: "When his attendant, James Maclure, held a cordial to his lips, he swallowed it eagerly, rose almost wholly up, spread out his hands, sprang forward nearly the whole length of the bed, fell on his face and expired." Chamber's comment is reasonable and evidently true: "The bard was far indeed from being in a condition to make any violent movement. Though he had been muttering in delirium for some time before, he died in a state of perfect calmness, the calmness of exhaustion." This is confirmed by the poet's eldest son who was in the room at the time.

Burns was by nature strong and vigorous, both physically and mentally; clear of vision; of an intense, nervous temperament; independent, proud, ambitious, imaginative; he was impatient of restraint and subject to moods varying rapidly from gaiety to the deepest depression.

In a person of this type however it is common that mental and nervous stress, worry and other emotional disturbance, produce a characteristic group of symptoms: headache, sleeplessness, digestive disturbance, irritability, apprehensiveness, depression, etc. often ending in a "nervous breakdown." If he is suffering at the same time from organic disease, a vicious circle develops, in which there is a mutual aggravation and intermingling of nervous and organic symptoms. This is clearly evident in Burns' case and it is not difficult to trace a relationship between his various illnesses and coincidental nervous and mental stress. The overwork, worry, privation and exposure of his early years predisposed him to rheumatic infection and endocarditis, reasonably accounting for the significant symptoms which appeared at fifteen years of age.

In his second serious illness at twenty-two years of age the manifestations were mostly nervous, though the phrases "anxiety or perturbation in my breast" and "pains and uneasiness" are at least suggestive of rheumatic and cardiac trouble. Three years later "alarming symptoms of a pleurisy or some other dangerous disorder, fainting fits," etc. point definitely to organic disease, the nature of which is made reasonably manifest two years later when an apparently slight injury to the knee was followed by a "crippling" illness which more or less incapacitated him for a year. During this time there are references to feverish attacks, later to toothache, spells of digestive disturbance, nervous depression, irritability and kindred symptoms.

In the middle of 1794 "a flying gout" made its appearance, and a year later an attack of rheumatic fever, which confined him to bed for over three months.

Beyond this point the case was an ordinary one of rheumatism with heart complications, shortness of breath, faintness, weakness, rapid, irregular pulse (auricular fibrillation), and toward the end, fever, parched tongue and delirium, presumably due to a bacterial endocarditis which developed as a terminal infection.

One need not look for a complete and accurate clinical description of his case; but it is remarkable that in his correspondence the symptoms Burns describes and the information he furnishes are sufficiently definite to place the diagnosis of his disease beyond reasonable doubt.

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# JOHN WESLEY AND MEDICINE

*By* C. A. BARAGAR, M.D. *

BRANDON, MANITOBA, CAN.

THE name of John Wesley ranks high, among the great religious reformers of the world and also among the great names of the eighteenth century, but few, even of medical men, know that in the midst of a busy itinerant life he wrote and published a treatise on Medicine, a booklet couched in such simple language as to be easily understood by the unlettered poor and yet in the treatment prescribed in accord with that of the foremost physicians of his day and in some of its definitions delightfully succinct and clear. The great number of editions and reprints published between 1747 and the middle of the nineteenth century are ample evidence of its popular success.

John Wesley was born in 1703 and died in 1791. The son and grandson of Church of England clergymen, he was himself a priest in the same church and for some years a Fellow of Lincoln College, Oxford. He was a man of great earnestness, strength of character and an indefatigable worker, but temperamentally more inclined to the cloister than to the parish.

In Wesley's time, according to Green, England was in a sadly degraded and corrupt state politically, socially, morally and religiously. The great masses of the poor, the common people, were "ignorant and brutal to a degree hard to conceive." For them there was little or no consideration from Church or State. Shocked and stirred by this state of society, Wesley forsook the seclusion of Oxford Halls to bear to the miners and fishermen, to the common people in general, a new religious life. He found also that for them there was no help when sick and in distress. It was for them that he prepared the little book entitled "Primitive Physick, or an Easy and Natural Method of Curing Most Diseases." In "A Plain Account of the People Called Methodists" (1748) he says:[1]

> But I was still in pain for many of the poor that were sick, there was so great expense and so little profit. At first I resolved to try whether they might not receive more benefit in the hospitals. Upon the trial we found there was indeed less expense, but no more good done than before. I then asked the advice of several physicians for them, but still it profitted not. I saw the poor people pining away and several families ruined, and that without remedy.
>
> At length I thought of a kind of desperate expedient. "I will prepare and give them physick myself." For six or seven-and-twenty years I had made anatomy and physick the diversion of my leisure hours. Though I never properly studied them, unless for a few months when I was going to America, where I imagined I might be of some service to those who had no regular physician among them. I applied to it again. I took into my assistance an apothecary and an experienced surgeon; resolving at the same time not to go out of my depth, but to leave all difficult and complicated cases to such physicians as the patient should choose.
>
> I gave notice of this to the society; telling them that all who were ill of chronical distempers (for I did not care to venture upon the acute) might, if they pleased, come to me at such a time and I would give them the best advice I could and the best medicines I had. Many came (and so every Friday since).

Out of this clinic grew the book. As a matter of fact many clergymen of that day dabbled in physic. Wesley's own grandfather when deprived of his living through politics turned to the practice of physic. Even in our day many an untrained missionary and many an unskilled sea captain dispenses from the almost universal Medicine Chest. That Wesley took his hobby seriously is evident from the definitions he gives and the treatments prescribed. He quotes from or refers to many of the most celebrated physicians of the time. Among these are: Tissot (1728–1797) of Lausanne, noted chiefly for his advocacy of variolation and his treatise on epilepsy and nervous diseases; Thomas Dover (1660–1742) of Dover's Powder fame, buccaneer physician and the rescuer of Alexander Selkirk in 1709; Boerhaave (1668–1738) of Leyden, a famous physician of his day; Richard Mead (1673–1754), who fell heir to Radcliffe's wealthy practice and the gold headed cane; Dr. Cheyne, a celebrated Scottish contemporary of Mead's who tipped the scales at 32 stone and was noted chiefly for his work on gout and scurvy; Dr. Huxham who recommended a vegetable diet for Admiral Martin's 1200 scorbutic sailors in 1747; Dr. John Lind (1716–1794), the father of Naval Hygiene; Sydenham (1624–1689) the great clinician and Riviére, Hill and Macbridge, not to mention Galen and Paré.

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* Medical Superintendent, Brandon Hospital for Mental Diseases. Address to the Osler Club of Winnipeg on October 13, 1926.

[1] Extract supplied through the courtesy of Mr. W. J. Healy, Provincial Librarian.

In his preface he severely criticises those physicians who by keeping the practice of the profession a mystery and by "introducing into practice abundance of compound medicines consisting of so many ingredients that it was scarcely possible for common people to know which it was that wrought the cure," secured "both their honour and their gain." "Yet," he says, "There have not been wanting from time to time some lovers of mankind who have endeavoured (even contrary to their own interest) to reduce physick to its ancient standard" and among these he mentions "The great and good Dr. Sydenham . . . his pupil Dr. Dover," and "the learned and ingenious Dr. Cheyne." It was to provide the common people with simple and safe remedies for most ordinary diseases that he wrote the book. "In uncommon or complicated diseases or where life is more immediately in danger" he advises "everyman without delay to apply to a physician that fears God."

The little book was published first in 1747 and attained such popularity that three impressions were called for in four or five years. It was re-edited with another prefatory note in 1755. The edition from which this account is prepared is described as the thirteenth, bears a third prefatory note, dated 1760 and was printed by William Pine in Narrow Wine Street, Bristol, 1768. The fifteenth edition appeared in 1772. Another copy to which I have had access is apparently a reprint of the edition of 1780 as it bears a fourth prefatory note of that year.[2]

In the 1755 edition, Wesley left out a number of less useful medicines, introduced some new ones, and, most important of all, added as footnotes,

> Plain definitions of most distempers, not indeed accurate and philosophical definitions, but such as are suited to men of ordinary capacities and as may just enable them in common simple cases to distinguish one disease from another.

In the 1760 edition he introduces the use of electricity which he states "comes the nearest a universal medicine of any yet known to the world."

In the 1760 edition, 274 distempers, with treatments and alphabetically arranged, are set forth. The terms used are in general descriptive of symptoms rather than of disease entities. For example we find treatment presented under such headings as "The Cholick (in a fit)," "Cholick in Children," "Bilious Cholick," "An Habitual Cholick," "An Hysterical Cholick," "A Nervous Cholick," and "Cholick from the Fumes of Lead, White Lead, Verdigris, Etc." Also, "A Cough," "An Asthmatic Cough," "Consumptive Cough," "A Convulsive Cough," "An Invertebrate Cough," "A Pleuritick Cough," "A Tickling Cough," "Violent Coughing from a Sharp Thin Rheum," and "Chin Cough or Hooping Cough." There are no less than nine different fevers.

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[2] Kindly lent by Rev. John Maclean, D.D. Wesley College.

The definitions of diseases are all very brief but often wonderfully descriptive, such as:

> A Pleurisy is a Fever attended by a violent Pain in the Side and a Pulse remarkably hard.
>
> A Palsy is a Loss of Motion or Feeling or both in any particular Part of the Body.
>
> In this Disease (Leprosy) the Skin in many Parts is covered with whitish scaly Pustules and if these are rubbed off with a kind of scaly Scurf.

This was probably psoriasis as in the case of the leprosy with which Naaman was afflicted.

> The King's Evil. It commonly appears first by Thickness of the Lips, or a stubborn Humor in the Eyes, then come hard Swellings in the Neck chiefly, then running Sores.
>
> The Iliac Passion . . . In this Violent Kind of Cholick the Excrements are thrown up by the Mouth in vomiting.
>
> In Falling Sickness the patient falls to the Ground, either quite stiff or convulsed all over, utterly senseless, gnashing his Teeth and foaming at the Mouth.
>
> An Apoplexy is a total Loss of all Sense and voluntary Motion, commonly attended with a strong Pulse, hard Breathing and Snorting.

What brief definition could be more descriptive than that of diabetes, "A frequent and large Discharge of pale and sweetish Urine attended with constant Thirst and a wasting of the whole Body," or of Scurvy which "is Known by Heaviness of the Body, Weariness, Rottenness of Gums, and Yellow, Lead or Violet-coloured Spots on the Legs."

Treatment being the purpose of the book it occupies a proportionately large space. As a rule several different kinds of treatment are given, some marked "Tried" and some "I" (Infallible), and one is advised to choose the first given and if that is not available or proves ineffectual, the second and so on.

Hydrotherapeutic measures are highly favored, especially the cold bath which is recommended for some fevers, an inveterate and other coughs, hysterial vigilia, stone in the kidney, consumption, blindness, cancer of the breast, and some fifty or more other conditions. Wesley remarks:

> Wise Parents should dip their Children in cold Water every Morning 'till they are three Quarters old and afterwards their Hands and their Feet . . . generally where cold Bathing is necessary to cure any Diseases, Water-drinking is so to prevent a Relapse . . . To this (water-drinking) Children should be bred up from their Cradle.

Sea bathing is advised for leprosy and shingles. Cold applications and local cold bathing are recommended for many things, such as bruises, sprains, chilblains, frostbite (immediate application till the part glows) "Flooding," "Menses Nimii," and nose bleed. "Washing the Head every Morning in cold Water prevents Rheums, and cures Coughs, old Head-aches and sore Eyes." Cold applications and hot are alternated in the treatment of "A White Swelling (on the joints)" and other conditions. The hot bath is recommended once or twice. Hot applications such as fomentations, local hot baths and poultices, all of which may be medicated, were frequently used. Steaming is advised for dropsy, earache, " to resolve coagulated Milk" (in the breasts) and "Strangury." For quinsy and headache, due to cold, one is told to use inhalations of balsam, rosemary, etc. "Hot Water in a Bladder" is prescribed for cholick and white swelling. Surely this is the original hot water bottle. Heat is also applied by means of a bag of hot oats.

Poultices, "Plaisters" and fomentations are used in forty-four or more conditions. The two former were made of turnips, leeks, onions, garlic, nettles, plantane, "Piony" bread, "Pit-Coal," Figs and Treacle on brown paper.

In 43 distempers, drinks hot and cold, especially cold, plain, acid or medicated are largely recommended, advice that can scarcely be excelled. Sea water as a drink is prescribed for asthma, shingles, and "Swollen Glands in the Neck" (goitre), in the last surely rational treatment.

Purges of senna, tartar, rhubarb, jalap, and others are prescribed in appropriate cases. But for "Costiveness" in general, diet is regarded as the important factor, the use of stewed fruits, whole wheat bread and vegetables all being emphasized.

"Clysters" are several times mentioned, once with 20 drops of laudanum added for "Hysterical Cholick."

The value of a proper diet is stressed throughout but is especially recommended in the treatment of costiveness, as before, scurvy, nervous diseases, increasing the flow of milk, and rheumatism.

Electricity recommended so highly in the 1760 edition is said to cure "St Anthony's Fire," blindness, "Flooding," "Menses Obstructed," "Leprosy," Sprains, Toothache and many other conditions. His praise of it would almost do credit to the more modern vendor of electric belts. It may be noted in passing that Franklin, Schaefer (1752), Rossler (1768) and Henley (1779) were using electricity in treatment at about this time, and that the first London Hospital, The Middlesex, installed a static machine in 1767.

Apart from bed care, posture is recommended twice, the upright position for apoplexy and the dorsal inclined position, head down, for a rupture. The latter with cold applications locally.

Drugs, usually in the form of decoctions, sometimes as tinctures or powders are frequently prescribed but almost invariably it is in such a simple form that they could be prepared by the average housewife. More powerful drugs are, however, occasionally recommended.

The use of laudanum, usually in small doses by the mouth, is mentioned as one of the treatments in ague, falling sickness, bloody flux, quinsy of the breast, and per rectum for hysterical "Cholick."

Quicksilver is recommended for asthma, whites, greensickness, hypochondria with nervous diseases, and lues venerea in doses of one ounce daily. For iliac passion the heroic dose of one to one and a half pounds is given, "ounce by ounce," and for "Twisted Guts" the yet more heroic dose of one to three pounds, surely a case of kill or cure.

In this connection in the prefatory note of 1755, Wesley writes:

> It is because they are not safe, but extremely dangerous that I have omitted (together with antimony) the four Herculean medicines, Opium, The Bark, Steel and most of the preparations of Quicksilver. Herculean indeed! Far too strong for common men to grapple with. How many fatal effects have these produced even in the hands of no ordinary physicians? With regard to four of these the instances are glaring and undeniable and whereas Quicksilver, the fifth, is in its native form as innocent as bread or water, has not the art been discovered so to prepare it as to make it the most deadly of all poisons. These, physicians have justly termed, edged tools. But they have not yet taught them to wound at a distance, and honest men are under no necessity of touching them, or coming within their reach.

In a footnote he remarks that in the case of Opium, The Bark and Steel, use is made of each of them once. It is interesting to note that steel in the form of filings, ground into fine powder, with red sugar candy is recommended for greensickness. The dose of the steel being about 12 to 18 grains.

The remedies mentioned are not, however, all quite so remarkable or desirable as the preceding. Ringworm, "Legs, sore and running," and dull sight are treated with rotten apple poultices or their juice. There are crabs' eyes for heartburn, crawfish ashes for the bite of a mad dog, eight beetles boiled in oil of mastick with eggshells as an ointment for "The falling of the Fundament," or "The falling down of the Womb," Toad pills for dry asthma, and a cowdung poultice for windy rupture. Wesley is not to be blamed for these, however. The crawfish ashes prescription is Galen's, and Sir Hans Sloane, the first physician to receive an hereditary title of honor, just previous to this time prescribed crabs' eyes and Sal prunellae for pleurisy. As a preferred treatment for the bite of a mad dog, Wesley does in fact recommend the immediate rubbing into the wound of moistened salt, a treatment quite in line with the use of salt tablets in septic wounds during the war.

The perusal of this little book in detail from the standpoint of treatment of various diseases is intensely interesting, but here not more than a brief reference can be made to a few especially fine examples.

In cancer of the breast we find it stated that Mrs. Bates of Leicestershire was cured "of a Cancer of her Breast, a Consumption, a Sciatica and Rheumatism which she had near twenty years" by the daily cold bath for a month and drinking only water, a fine testimonial.

For a "Consumption" we are told:

> Cold Bathing has cured many deep Consumptions. Take no food but new Butter-Milk churned in a bottle, and White Bread. I have known this successful. Or take a spoonful of Fox-glove Morning and Evening: Tried. Or every Morning cut up a little turf of fresh Earth and lying down breathe into the hole a quarter of an hour. Or live on Raisins and Bread and drink only a Decoction of Barley and Liquorice.

He quotes Dr. Dover as recommending bleeding, "six ounces of Blood every Day for a Fortnight if he lived so long, and then every other Day, then every third Day, then every fifth Day for the same time." Lastly he says, "In the last Stage suck an healthy woman daily." To this adding in a latter edition, "This cured my Father."

The smell of fresh earth, as from new plowing, has been tried in the early days in Ontario as a cure for consumption. Perhaps the suggestion came from Wesley's book.

For lead palsy we find the use of warm baths and a milk diet recommended, a treatment that would pass muster even to this day. As a preventive of lead cholick, Wesley advises smelters and plumbers to wear "Cloth or Flannel Mufflers twice or thrice doubled, dipt in a solution of Sea Salt or Salt Tartar and then dried."

For "the Itch" among other remedies one is to wear a shirt for five or six days that has been steeped in brimstone and water and dried slowly.

For lues venerea, Wesley recommends "An Ounce of Quicksilver every Morning and a Spoonful of Aqua Sulphurata in a Glass of Water at Five in the Afternoon," and then apologetically adds: "I insert this for the Sake of Innocent Sufferers."

An interesting condition which is called "Quinsy of the Breast" and "is known by a sudden unaccountable pain and difficulty of breathing seizing a person in the night or on any violent motion" is mentioned first in the 1780 edition. For it the treatment is 8 to 20 drops of laudanum, lying down or "to make an issue in the Thigh." It was in 1768 that Heberden described and named angina pectoris.

The treatment of scurvy is excellent and would be almost entirely acceptable at the present time. It consists of a vegetable diet, "Live on Turnips for a Month" or a milk diet for six months, or tar water, morning and evening for three months, nettle juice, decoction of burdock, juice of goose grass, water and garden cress, mustard juice of scurvy grass and a plentiful supply of lemon and orange juice.

In smallpox one is advised to drink largely of toast and water or live on milk and water with a little bread or milk and apples, and "Take Care to have a free, pure and cool Air. Therefore open the Casement every Day only do not Chill the patient."

He mentions the necessity of avoiding chills after measles and obstructed menses. To prevent catching any infectious fever one is warned not to "breathe near the Face of the Sick Person, neither swallow your Spittle whilst in the Room. Infection seizes the Stomach first."

These are examples of treatment as prescribed by John Wesley but the best advice in the whole book is contained in the preface as a list of general rules for the preservation of health, a set of rules that would serve as admirably now as then. Being primarily a clergyman he begins and ends with a little sermon.

After giving general directions as to the taking of the medicines prescribed he adds:

> Observe all the time the greatest exactness in your regimen, or manner of living. Abstain from all mixed, all high seasoned food. Use plain diet easy of digestion, and this as sparingly as you can, consistent only with ease and strength. Drink only water, if it agrees with your stomach, if not good clear small beer. Use as much exercise daily in the open air as you can without weariness. Sup at six or seven on the lightest of food. Go to bed early and rise betimes.
>
> For the sake of those who desire, through the blessing of God, to retain the health which they have recovered, I have added a few plain easy rules, chiefly transcribed from Dr. Cheyne.
>
> I. 1. The air we breathe is of the greatest consequence to our health. Those who have been long abroad in easterly or northerly winds should drink some thin and warm liquor going to bed, or a draught of toast and water. . . .
>
> 3. Everyone that would preserve health should be clean as possible in their houses, cloaths and furniture.
>
> II. 1. The great rule of eating and drinking is to suit the quality and quantity of the food to the strength of the digestion, and to take always such a sort and such a measure of food as sits light and easy on the stomach.
>
> 2. All pickled, or smoked, or salted food, and all high season'd is unwholesome.
>
> 3. Nothing conduces more to health than the abstinence and plain food with due exercise.
>
> 4. For studious persons, about eight ounces of animal food and twelve of vegetable in twenty-four hours is sufficient.
>
> 5. Water is the wholesomest of all drinks, quickens the appetite and strengthens the digestion most.
>
> 6. Strong and more especially spirituous liquors are certain though slow poisons. . . .
>
> 10. Coffee and tea are extremely hurt-ful to persons who have weak nerves.
>
> III. 1. Tender persons should eat very light suppers, and that two or three hours before going to bed.
>
> 2. They ought constantly to go to bed about nine and rise at four or five.
>
> IV. 1. A due degree of exercise is indispensably necessary to health and long life.
>
> 2. Walking is the best exercise for those who are able to bear it, riding for those who are not. The open air when the weather is fair contributes much to the benefit of exercise. . . .
>
> 4. The studious ought to have stated times for exercise, at least two or three hours a day, the one half of this before dinner, the other before going to bed. . . .
>
> 7. The fewer clothes anyone uses by day or night the hardier he will be.
>
> 8. Exercise, first, should always be on an empty stomach, secondly, should never be continued to weariness; thirdly after it we should take care to cool by degrees; otherwise we shall catch cold. . . .
>
> 10. Cold bathing is of great advantage to health. It prevents abundance of diseases. It promotes perspiration, helps the circulation of the blood, and prevents the danger of catching cold. Tender people should pour water upon the head before they go in and walk swiftly. To jump in with the head foremost is too great a shock to nature.
>
> V. 1. Costiveness cannot long consist with health. Therefore care should be taken to remove it at the beginning and when it is removed, to prevent its return by soft, cool, opening diet.
>
> 2. Obstructed perspiration (Vulgarly called catching cold) is one great source of diseases. Whenever there appears the least sign of this let it be removed by gentle sweats.
>
> VI. 2. All violent and sudden passions dispose to, or actually throw people into acute diseases.
>
> 3. The slow and lasting passions, such as grief and hopeless love, bring on chronical diseases. . . .
>
> 5. The love of God, as it is the sovereign remedy of all miseries, so in particular it effectually prevents all the bodily disorders, the passions introduce, by keeping the passions themselves within bounds. And by the unspeakable joy and perfect calm, serenity and tranquility it gives the mind, it becomes the most powerful of all means of health and long life.

Such was the character of the work of John Wesley in the field of medicine. He laid no claim to skill in diagnosis, he did not in general pretend to deal with dangerous or abstruse diseases, and he did not attempt to supplant the doctor. In serious conditions he advised his patients to consult a good physician where possible. His treatment was in the main symptomatic, but it was in accord with the best medical practice. His rules for the preservation of health, chiefly transcribed, as he says, from one of the most noted physicians of his day, were sound and easily applied. He criticized many of the physicians who were his contemporaries, but his criticism was just. Due credit and honor were given to those of integrity and high professional skill and with unerring judgment he ascertained who they were and drew largely upon their wisdom in the preparation of his book. He found the great masses without help in time of sickness, and failing a more satisfactory solution, he set himself with characteristic energy and thoroughness to the task. He did much to direct the attention of the public to the importance of health and he pointed to the source from which help must come. As a layman he has earned, I think, an honored place in the history of medicine.

# CONSTANTINE SAMUEL RAFINESQUE

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IN writing of the men who helped materially to advance the intellectual development and the sciences in this country, no one has a better claim to a place in the front rank, than Constantine Samuel Rafinesque. He lived at a time when learning was at a premium in certain localities. This cannot be claimed for the great Western country at this early period, for though it is true there were many well-educated people among the early settlers, the fact remains that in a new country like this, the incentive for acquiring and diffusing knowledge was not marked. The advantages for intercourse with learned persons, together with the far removal from the great urban centers, was usually enough to cool the ardor of the most ambitious student. In the Western country, clearing forests; building houses, establishing settlements, and tilling the land were the most important questions that occupied these hardy pioneers, hence little time, thought or encouragement was given to subjects in which Rafinesque was most interested.

It was with such surroundings, that Rafinesque continued his scientific researches in Kentucky and in the adjacent regions and gave the best years of his life.

Constantine Samuel Rafinesque was born in Galata, a suburb of Constantinople on October, twenty-second, 1783. His father was a Frenchman engaged in a mercantile business which necessitated frequent trips between the Orient and his native country. His mother was Mme. Schmaltz who was of German parentage, though she was born in Greece, hence, in the body of Rafinesque flowed Franco-German blood. He had one brother, Anthony Augustus who came to America with him and returned to France in 1805. Nothing further is known of him. He refers once only to a sister, a Mrs. Lauthois who also resided in France.

Regarding the remainder of his family little is known, except from fragmentary items found here and there in his writings, it appears however, that upon his mother, who by the way, was highly educated, rested the responsibility for his early training and education, which duty she seems to have discharged in a most satisfactory manner.

Rafinesque was one of the most widely travelled men of his day. When a small child he was taken to Asia. After staying there a very short time, his mother took him to Marsailles, where he remained until the French Revolution. Fearing the excesses connected with the disturbed condition in France his mother again took him to Leghorn, Italy, in 1792, where they resided for four years. In the latter place he received daily instructions in mathematics, drawing and the languages especially English. He early developed a taste for reading and all his spare time was thus employed. He declared that he had read many books; "Some good and some bad, but happily I knew how to distinguish them."

Before he was twelve years of age he boasted of having read the Universal History and one thousand other books on various subjects. It must be borne in mind that Rafinesque never attended a regular college, and that his education was gotten with the aid of private tutors, reading and travelling. It was during his residence in Leghorn, in 1795, that he first began the collection of plants, and became intensely interested in botany and the natural sciences.

He left Leghorn, in 1796, to reside in Pisa with his paternal grandmother, and after a short stay in the latter place he was sent to Genoa, for what purpose and just how he occupied his time, he does not say. It is probable that while in the latter place he devoted his time to the study of the sciences, as was his bent, and that he further completed his education by studying chemistry, natural and moral philosophy and some of the dead languages, though it is known he spent little time on the latter.

That he was a most precocious youngster cannot be doubted, as he corresponded regularly with many prominent scientists and appears to have made discoveries at an early age, that drew their attention to him. He says:

> I made to myself a small garden in a wild and remote place. I began the study of Fishes and Birds, I drew them and collected shells and Crabs. Daudin of Paris, who published a natural history of Birds, was my first correspondent among the learned, and I communicated to him some observations on Birds. I drew maps, copied those of rare works, and took topographical surveys; these were my first essays in geography.

From this time up to 1802, when he sailed for America we find him in constant communication with many scientific men on subjects of mutual interest.

Being of a somewhat restless disposition, he determined to come to America, which he did in the spring of 1802, in company with his brother, Anthony Augustus. He landed in Philadelphia April eighteenth, 1802, on a ship owned by the Cliffords of the latter place. The trip was like most long voyages in those days, tedious and attended with considerable danger, requiring forty-two days to come over. While on the ocean, he studied the fishes and turtles. Of the latter he says, "Being easily caught while sleeping on the waves, the fishes, however, were scarce and not easily procured."

When Rafinesque first landed in this country he was eighteen years old, and had letters to many prominent men, among whom were the Cliffords of Philadelphia, who conducted a banking house in that city, and to Dr. Benjamin Rush also of Philadelphia. Dr. Rush offered to assist him and to become his preceptor, but this offer from the Doctor was declined, as he preferred to accept a position offered him in the banking house of the Cliffords. While working in the banking house, the city of Philadelphia was visited with an epidemic of yellow-fever. He left the city in company with his brother, travelling and botanizing in New York and in New Jersey, finally going to Germantown for an extended stay with the noted horticulturist Colonel Forrest. Late in the fall of 1803, after the epidemic had subsided, he returned to Philadelphia, resigned his position, and travelled extensively up and down the Atlantic Coast as far south as Washington, D. C. Here he met many prominent people among whom were President Jefferson, and Mr. Madison, then Secretary of State; also botanists, and men interested in natural sciences, from whom he collected a large amount of material. He returned to New York where he stayed a short while arranging and packing his specimens and in January, 1805, he sailed in company with his brother for Sicily.

FROM THE PAINTING BY JOUETT IN THE WISCONSIN HISTORICAL SOCIETY'S COLLECTION.

RAFINESQUE FROM THE PAINTING BY JOUETT, IN THE "WISCONSIN HISTORICAL SOCIETY COLLECTION."

The trip was uneventful except at a port in Italy, where the ship was held in quarantine forty days.

That the method of fumigation of vessels held in quarantine did not meet the approval of Rafinesque is evident from his letter written from Palermo, February, twenty-fifth, 1806.

> I thank you for your information concerning yellow-fever in New York, on which my opinion perfectly coincides with yours. Capt. Bennet, the bearer of yours and of this letter, is another example of the wrong policy of your government (Italy), which has led this and others in these parts, to put American trade under the greatest embarrassments. Prof. Dumeril has declared his conviction of the uselessness of acid fumigations to destroy contagion. To this may be added the total failure of the oxygenated muriatic acid gas to any good during the prevalence of yellow-fever in New York in 1805.

This loss of time, he says:

> Was spent in arranging my plants, drawing the new species, writing my travels and letters. I had brought a fine collection of plants, seeds, shells, minerals, and etc. My herbal contained nearly 2400 species, and 10,000 specimens. I sent many to Professors Savi of Pisa and Radi of Florence, who gave me Italian plants in exchange.

From this it can be seen that he must have worked laboriously in collecting such an immense amount of material. After landing at Palermo, Rafinesque became secretary and chancellor to Mr. Gibbs, who was then Consul.

While residing in Sicily he married a Miss Josephine Vaccaro who bore him a son and daughter. The son died in infancy, the daughter Emily became an Opera Singer. She later gave birth to an illegitimate child and from scant references to her, seems to have gone from bad to worse, dying finally in Naples. That this union was not a happy one, can be inferred from his meager mention of, "My wife not entering into the spirit of my life."

His stay in Sicily afforded him ample opportunity to continue his botanical and other studies. He remained in Sicily ten years employing his time in various ways, besides those mentioned above, he was for a while editor of a magazine, manager of a distillery for making brandy, and candidate for a state position which he never obtained. While his residence in Sicily was productive of a considerable fortune, it seems he did not always get along smoothly with the people or regard them highly, as he epigrammatically says of the country. "A fruitful soil, a delightful climate, excellent productions, perfidious men and deceitful women."

In 1815 Rafinesque left Sicily to return to America, his voyage reads more like romance, than the narration of cold facts, for such they were, though for a while they were accepted with some reservation, time, however, has proven his statements, in every particular, true.

After being out for some days the ship suffered considerable damage from severe storms, this necessitated stops at Gibraltar and at the Azores for repairs, and during these stops Rafinesque was able to collect many valuable specimens. The voyage was resumed only to be delayed by frequent storms, finally after many hardships, and one hundred days at sea, they reached the American shore near Long Island. Here the misfortune of running on the rocks and wrecking the ship near Fisher's Island compelled the passengers to take to the small boats in which they were finally able to land at New London, weather beaten, out of food, with all of their belongings lost at sea.

Rafinesque was able to save a few papers and his insurance policy which he had carried on his specimens. He walked to New London, and from there made his way overland to New York, where he met some old friends who supplied his immediate wants. His time was spent in teaching and collecting specimens in New York and in the adjacent states. During his residence in New York City he helped to form the Lyceum of Natural History, and later became a member of the Philosophical Society, and was busily engaged in his literary work. Going to Philadelphia on business he met his friend, John D. Clifford, who induced him to come to Kentucky, which he did in the summer of 1818.

The first trip Rafinesque made to the Western country was by easy stages from Philadelphia to Lancaster, walking from the latter place to Pittsburgh. Here he rested for several days, during which time he found several congenial companions who purchased a boat in which they floated down the Ohio River, camping at night, until they reached Cincinnati where he left his companions to make a short trip through lower Indiana to visit his old friend Mr. Short. He rejoined his fellow travellers and continued with them until they reached Shippingport at the foot of the falls of the Ohio. Here he received a warm welcome by his friends the Messrs. Tarascon who operated a large flour mill. Rafinesque remained in Louisville (or Shippingport which is now within the limits of Louisville), for several weeks collecting specimens. From the latter place he went by boat to Henderson, Kentucky, to visit the renowned Audubon. On this visit Audubon relates how Rafinesque acted, which must not be taken too literally, it does show however the straight-forward trusting character of Rafinesque. Audubon refers to him as the "Eccentric Naturalist." He says:

> Clean clothes were offered but he would not accept them, and it was with evident reluctance that he performed the lavations usual on such occasions before he sat down to dinner.

When shown some plants by Audubon, "He danced, hugged me to his arms, and exultingly told me that he had got not merely, a new species, but a new genus."

When time came for him to retire for the night, Audubon relates another incident, while if not true, is to say the least, amusing:

> I showed him to the apartment intended for him during his stay, leaving writing material in abundance. We had all retired to rest. Every person I imagined was in deep slumber, save myself, when of a sudden I heard a great uproar in the naturalist's room. I got up, reached the place in a few moments and opened the door, when to my astonishment, I saw my guest running about the room naked, holding the handle of my favorite violin, the body of which he had battered to pieces against the walls in attempting to kill the bats, which had entered by the open window, probably attracted by the insects flying around the candle. I stood amazed, but he continued running around and around until he was fairly exhausted, when he begged me to procure one of the animals for him, as he felt convinced they belonged to a new species, although I was convinced to the contrary.

The above incident has no doubt been recorded many times before, and sounds well. But when one studies the life and temperament of Rafinesque, he is forced to the conclusion, that the naturalist was always more considerate of the feelings, rights and property of others than one would be led to believe from Audubon's description of him. While he no doubt gave vent to his feelings when he discovered something new, it is hardly probable that such a burst of enthusiasm was shown by him, and that the description was prompted, as some writer's have said, with the idea of making Rafinesque appear as ridiculous as possible. In substantiation of this conclusion one has only to recall the "Cane Brake" story told by Audubon on Rafinesque, and that Audubon played upon the credulity of Rafinesque there can be no doubt.

Rafinesque left Henderson for a trip to the Mississippi observing and collecting many specimens. He stopped for a few days at New Harmony on the lower Wabash, where resided Say, Owen, Maclure and LeSeuer, men who had already attained great prominence in the scientific world. Leaving here he made his way back to Louisville where his specimens were prepared for shipment to Pittsburgh, while he continued his journey to Lexington, Kentucky, where he was the recipient of many courtesies, especially, by his old friend John D. Clifford. His stay here was most pleasant, and this together with the earnest solicitations of friends to remain, the promise of a professorship in Transylvania University caused him to decide in favor of Lexington as his future home. On being notified that he had been elected to the professorship of botany, he on April twenty-fifth, 1819, sent his letter of acceptance to the board of Trustees. Other offers were open to him elsewhere, but Rafinesque saw great advantages that might acrue to him in the Western Country with his friend Clifford. "A friend of mine, Mr. Mitchel wanted me to form a partnership with him, and I even refused the Chair of Professor of Chemistry, but I gave up trade and etc, for Clifford and the West."

He returned to Philadelphia to arrange some business matters after the completion of which, he made final arrangements to come to Lexington in the spring of 1819.

Upon his arrival in Lexington, he found his friend Clifford away in the mountains collecting specimens, Rafinesque joined him, and early in the fall they returned to Lexington, where he (Rafinesque), entered upon the duties as lecturer on Natural History in Transylvania University. In the spring of 1820 he included a course in botany. During his residence in Lexington he was busily engaged in lecturing and collecting specimens of all kinds, this latter, of course, necessitated his making journeys to every part of the state, and not infrequently carried him beyond its borders. While here he wrote many articles and some of his best known contributions to science were made while in Lexington. He was Secretary of Kentucky Institute, the first scientific society in the state and probably the first west of the Alleghanies. This society comprised the literary luminaries of the West, many valuable papers were read before it that later found their way into print in the Cincinnati Literary Gazette. He found time to explore, map out and describe the ancient mounds in and around Lexington. As well as to give private lessons in French, Italian, and Spanish, also in medical botany. His method of teaching was radically different from his colleagues and was the subject of much criticism by them, but to this he paid little attention. He always exhibited specimens of the object lectured upon, thus becoming the first object teacher west of the Alleghanies. His later lectures were more of a psychological nature. The Kentucky Reporter of April fifteenth, states,

> Public lecture on The Human Mind, will be delivered in the Chapel of Transylvania University . . . Prof. Rafinesque will deliver a discourse by request of Phrenology, Craniology and the Analysis of the Human Mind, on this evening (April, 16, 1822), at 7 P.M. in the Medical Hall Room.

This lecture was the only one he ever delivered where charges for admission were made.

The idea of a Botanical Garden in Lexington was first projected by him, and though much opposition was manifested, he nevertheless finally succeeded in starting one, though it was short lived. He induced the Kentucky Senate to pass a bill to establish the garden, but the House refused to sanction it. This did not discourage him, as he at once undertook the formation of a company composed of such friends as he could induce to become interested. A greenhouse, a library and a museum were planned as part of the garden and a fine quality of seeds were to be distributed among the farmers. This would indeed have been a great acquisition to Lexington, had the people in this small inland town been atuned to such an enterprise. The garden was, for lack of interest and funds, finally abandoned which was a great disappointment to Rafinesque, as he said later, "I had to forsake it at last, and make again my garden of the woods and mountains."

While he was actively engaged in inducing the Kentucky Legislature to appropriate funds for the garden, he was taken violently ill with measles, which at that time was epidemic and singularly fatal. From the following statement it seems he treated himself, as he did not entertain a very high regard for the method of treatment then in vogue. "But I recovered in spite of the physicians, by taking none of their poison, antimony and opium, while many died in their hands."

In 1823 Rafinesque made an extended tour through Tennessee and Kentucky, much of this was over unchartered territory. On his return he visited Mammoth Cave of which he says: "I spent one day to survey it, and found it very different from the printed exaggerated accounts, but yet wonderful enough."

Lexington was reached in July, and in September he made another extensive trip that embraced Eastern Kentucky, Cumberland Gap, and Pine Mountain, all of which he explored. This was the last trip he ever made in Kentucky and in the Western country.

At the time he came to Lexington to live, Dr. Horace Holly was President of the University, and as he was a man of decided views, Rafinesque soon found he could not subscribe to some of his ultra-conservative ideas. Friction arose between them, though this did not come to an open rupture of relations at this time. Holly, who is referred to in one of the early Kentucky Gazette papers as a "Spiritual Peddler," had little patience with the natural sciences, as may be seen from Rafinesque's letter upon his return from the East:

> To evince his hatred against sciences and discoveries, he had broken open my rooms, given one to the students, and thrown all of my effects, books and collections in a heap in the other. He had also deprived me of my position as Librarian and my board in the college. I had to put up with all this to avoid beginning lawsuits. I took lodgings in town, and carried there all my effects; thus leaving the college with curses on it and Holly; who were both reached by them soon after, since he died next year at sea of yellow-fever, caught at New Orleans, having been driven from Lexington by public opinion; and the college has been burnt in 1828 with all its contents.

That his connection with the college was not altogether pleasant is quite apparent, and that the abrupt termination of his services was no less a surprise to him than it was unwarranted. Letters that are still extant from old students and others, who profess to know both Holly and Rafinesque, state that there was no good reason why Rafinesque should have become so incensed. On the contrary none of these letters refute the charges that Dr. Holly deprived him of his room and scattered his belongings.

He was a frequent contributor to the public press, and he carried on an extensive correspondence with men of prominence in all walks of life. He was an intimate friend of President Jefferson and a welcome guest at Monticello.

Before leaving Lexington, in 1825, he invented and patented the "coupon bond," as a means of protection against fraud. After undergoing some slight changes the coupon bond used today is the result of his invention. He had an intimate knowledge of the banking business, and later wrote a book on "Safe Banking including the Principles of Wealth."

Also another small book printed in Philadelphia in 1840, on the "Pleasures and Duties of Wealth," in which he attempts to classify individuals according to their earthly possessions, as well as the power of wealth and the good use that should be made of money. He speaks of labor and capital, and admonishes us to use wealth wisely, and for others good, as well as for ourselves, and to be careful in selecting our charities.

Of the pleasures and duties of wealth, he says:

> Property is a reward of industry, the passion to obtain same may be by injustice, oppression, strife and even blood-shed, through cunning, force, war or bad laws.
>
> Mankind has often been divided into two classes, the rich or wealthy, and the poor or indigent; which have been ostensibly arrayed against each other, but there is a third or middle class which balances these two, it is the nameless middle class of individuals neither rich nor poor.
>
> Wealth is power, Knowledge is power, Industry is power, Wealth should furnish the means, Knowledge unfold the ways, Industry effect them.

The most obvious use of wealth is to procure happiness to us and others.

Deprecates building palaces and castles and no homes for honest families.

Rafinesque finally left Lexington in June, 1825 for Philadelphia taking with him all of his belongings, consisting mostly of specimens, books and manuscripts. During his residence in Philadelphia he made many trips, which included the middle Atlantic States. These furnished a long sought opportunity to acquaint himself with the mountain flora of the Appalachians. He also taught modern languages privately, and natural history in the Franklin Institute where he was later made professor of geography.

RAFINESQUE FROM "ANALYSE DE LA NATUR."

As stated above he did not entertain the highest regard for doctors, he early foresaw that certain radical changes were necessary to place the practice of medicine on a scientific and rational basis, and to this end he describes the several classes of men practicing at that time; "Rationals," "Theorists," "Empirics." The Rational medical men are liberal and modest, learned, and well informed, neither intolerant nor deceitful, and ready to learn to impart information, they comprise the "Improvers and Eclectics."

This is the first application of the term, "Eclectic" to designate any school or class of practitioners of medicine during the nineteenth century.

The Theorists are often illiberal, intolerant, proud and conceited.

The Empirics are commonly illiterate, ignorant, deceitful, and follow a secret and absurd mode of practice or deal in patent remedies.

All these classes need instruction in the natural knowledge of medical substances; and it ought to be afforded to them.

That the practice of medicine needed reform was apparent to others besides Rafinesque, as Thomas Jefferson wrote, "I believe we may safely affirm that the inexperienced and presumptuous herd of medical tyros let loose upon the world destroys more lives than all the Robin Hoods, Cartouches and Macheaths do in a century."

Rafinesque undertook the precursive work of medical reform, as he saw it. It was his avowed purpose to make botanical knowledge accessible to all. He spared himself neither time nor exertion. He made journeys over fourteen out of the twenty-four states, performing over eight thousand miles in actual travel. Thus, he employed fifteen years in collecting material that ultimately had its good effect on the profession of medicine.

He was warmly opposed to the exclusive spirit and action of professional men in regard to dissemination of scientific knowledge. He regarded the lack of progress of medical men as largely due to expensive publications only accessible to the wealthy. "Works of general utility," said he, "Ought to be accurate, complete, portable and cheap. Such alone can spread the required correct knowledge and suit every class of readers."

It will be recalled that most all of his publications were of convenient size with paper covers, hence, cheap, and his portable "Medical Botany," seems to have met all requirements.

The purpose as well as the trend of the writings of Rafinesque was to regenerate the art of medicine in his adopted country, that it might become an art of healing as well as an exercise of the mental faculties. He had witnessed its numerous failures and believed them to be the result of obnoxious medication supplementing the ignorance of the prescribers, and justly took a decided position against the extreme notions of polypharmacy, which were current and inveighed forcibly against the practice of jumbling scores of ingredients into a single prescription.

His labors were not without fruit during his lifetime. He did not succeed as he had anticipated, in converting to his views the leading physicians. He was impatient at the ignorance displayed by many of them, yet, among some of these he was to find the first good ground for his sowing, with promise of an abundant fruitage.

Rafinesque early foresaw the inevitable failure of the Linnaean system of classification, and had the temerity to propose a natural method which possessed no attraction for the superficial scholars.

He was thus at odds with the received science of his time, and suffered the fate of those who are in the advance. The contemporaries of Rafinesque appear to have been morally blind to his merits, as well as mentally incapable of understanding his teachings. Dr. Baldwin a distinguished botanist of his time says:

> I had the opportunity for the first time of attending a meeting of the Academy of Natural Science. Two communications on new genera from the redoubtable pen of Rafinesque, a member of 10,000 learned societies. I was rejoiced to see that the members of the Academy had sufficient independence to reject the wild effusions of a literary madman.

Time only proved that these wild effusions of the literary madman are today real truths. Rafinesque was keenly sensitive to the treatment he had received, and wrote:

> The art of seeing well, or noticing and distinguishing with accuracy, the objects which he perceives, is a high faculty of the mind, unfolded in a few individuals, and despised by those who can neither acquire it nor appreciate its value.

Rafinesque was one of the foremost conchologists of his time, his work in this branch of natural science was accepted generally as an authority. He was the first to call attention to the new, varied and undescribed animal life in western waters. For a considerable time it was thought that some of the oriental nations were the only possessors of the secret of forcing the mussel to form pearls. That Rafinesque understood this secret may be judged from the following notice he inserted in the Kentucky Reporter of September sixth, 1820.

> If any one living on the banks of the Ohio, Kentucky or other streams where the muscle shells are common, wishes to establish a manufacture of real pearls, I shall be willing to communicate to them all the different processes needful to the purpose of compelling the muscle to form their pearls, for a small consideration, or for a share in the profits. The Capital needed for such a manufacture, is a convenient place and from $50 to $100. The profits may amount to from $100 to $10,000 a year according to the size of the pearls produced.

One eminent authority on this subject says, "Considered as a whole, the conchological work of Rafinesque was remarkably well done."

As to his archaeological work it can be said that he devoted considerable time, some of it good, but most of it very indifferent, and had his reputation as a scientist rested solely on this branch he would have been a pronounced failure.

That he had ideas of evolution there can be no doubt, associated as he was daily with plant and animal life, and understanding as he did the different factors entering into their formation and development. His views were perhaps not well defined as may be judged from reading his work on Somiology published in 1814. He wrote in 1833:

> I shall soon come out with my avowed principles about G. and Sp. partly announced in 1814, in my principles of Somiology, and which my experience and researches have ever con-

firmed. The truth is that Species and perhaps Genera also, are forming in organized beings by gradual deviations of shapes, forms, and organs, taking place in the lapse of time. There is a tendency to deviations and mutations through plants and animals by gradual steps at remote irregular periods. This is a part of the great universal law of perpetual mutability in every thing.

This utterance by Rafinesque is truly remarkable when we remember that at that time, the whole scientific world was unalterably opposed to any view other than the accepted one of the fixity of species, and the immutability of genera. His views were considered mere flights of fancy by a visionary individual, the fact remains, however, that in them were contained the essence of the great truths, later enunciated by Darwin.

Rafinesque was not a physician, but had acquired during his career an intimate knowledge of the profession and being well posted in medical botany applied this knowledge to the treatment of himself for consumption. He prepared a concoction which he called "Pulmel," and advertised it extensively as a cure for phthisis, and in 1829 he wrote a small book on the subject, that he called "The Pulmist or the art to cure and to prevent the consumption." He says:

> Having cured myself completely in 1828 of my chronic consumption, which was the fatal phthisis, caused by my disappointments, fatigues, and unsteady climate; which my knowledge in medical botany enabled me to subdue and effect a radical cure. I entered into arrangements for establishing a chemical manufacture of vegetable remedies against the different kinds of consumption. This succeeded well. I introduced also a new branch of medical knowledge and art. I became a Pulmist, who attended only to diseases of the lungs as a Dentist attends only to the teeth. Being thus the first Pulmist and perhaps the only one here or elsewhere. This new profession changed my business for awhile, yet enabling me to travel again in search of plants, or to spend my practice and to put my collection in better order, publishing many pamphlets etc.

He was criticised severely for this attempt at practice, and openly charged with being a charlatan. That these charges were unjust, can be readily seen, for first, he had the courage of his convictions and practiced on himself; second, his object was to obtain funds to further prosecute his botanical studies and enlarge and perfect his collection. When these are considered, one is forced to conclude the real object of his acts was to benefit mankind and to do good, as he saw it and not that of self aggrandizement.

That nothing escaped his critical eye is quite evident from the various subjects upon which he wrote. His small book on "Thoughts on Atmospheric Dust," published in 1818, and his observations on the "Salivation of the Horse," in 1820, attracted considerable attention, of the former he says:

> Atmospheric dust is found everywhere. I have observed it on Mount Etna, in Sicily, on the Alps, on the Alleghany and Catskill mountains and on the ocean . . . The size of the particles is very unequal, their shape dissimilar, the properties of atmospheric dust are those of being soft, as light as atmospheric air, of reflecting the rays directly from the sun, possesses a kind of electricity which gives it a tendency to accumulate on some bodies more readily than on others. The uses of atmospheric dust. . . . Serves to create mould over rocks, to increase their decomposition, to add to our cultivable soil, to fertilize sandy and unfruitful tracts, to administer to vegetable life. . . . The dust from the road, field, from our rooms is only a secondary dust due to pulverization and is visible and is only a consequence of the first.

Of the latter he states the cause and suggests the remedy:

> The two weeds, Euphorbia hypericifolia and Lobelia inflata or asthma plant cause it, and cattle made sick by them can be cured by feeding them plentifully on cabbage leaves, the leaves of turnips, radishes, and mustard. . . . It is possible the salivation in men might be cured by similar remedies.

Besides the above mentioned subjects, he wrote a small book entitled "Celestial

Wonders and Philosophy, or The Structure of the Visible Heavens," in which he discusses the form of the visible firmament and says:

> The facts and data are the gradual evolution of our astronomical knowledge, and that nearly all the prophetical surmises of eminent astronomers have not only been realized, but exceeded and that celestial wonders is a constant reminder of the existence of a God.

That he consulted the Muses is freely attested by looking over the long list of his writings, one of the most striking is his poem entitled, "The World of Instability," in twenty parts, in which he says,

> If Solomon did say, that nothing is new under the sun, 'tis not quite true; since we contend that every hour and day brings novelties with changes due array.
>
> Whatever had a birth must change sustain, unsteady ever be; but not in vain, Enjoying life must die to live again, in after lives perfection to attain.

In this book his name does not appear, but elsewhere he practically admits he is the author of the poem.

It cannot be claimed for him that his style of writing was ornate or that his grammatical expressions were of the best, his brevity and contractions in his descriptions of natural objects coupled with many unusual expressions, may be readily explained by his foreign birth.

The last days of Rafinesque's life were spent in the most abject poverty, he lived in a garret on Race Street, in Philadelphia, where he died surrounded only by his books, plants, and minerals, the things he cherished most. He shunned company and had but few real friends. He died of cancer of the stomach on September eighteenth, 1840, and had it not been for a few friends, who hastened to his room upon learning of his death, his body would have been sold by his landlord to a medical school for dissection, to satisfy his paltry bill for lodging. It was forcibly taken from the landlord and given decent burial in Ronaldson's Cemetery, at Ninth and Catherine Streets. The grave was not marked until 1861, when a plain board slab on which the letters, "C. S. R." were painted. In 1919 a stone slab was erected by Mr. Henry C. Mercer.

In 1923 Mrs. Charles F. Norton, the present librarian of Transylvania Library, learned that the cemetery in which Rafinesque was buried was to be abandoned, and at once started a movement to have his body brought to Transylvania College in Lexington, Kentucky. This was finally accomplished in 1924, when his remains were brought to Transylvania and deposited in a vault on the Campus, thus, as David Starr Jordan said, "It is no longer true that we know not even the place where he rests after his long journey."

Rafinesque was one of the most brilliant men of his time. Endowed with natural gifts far above the average, his intellectual powers were strengthened by the training and discipline of hard study. In every pursuit he was an enthusiast. His study and application to the sciences was coupled with an industry and perseverance that had no bounds, and showed no abatement as years went on. The torch lighted in his youth or student days burned with a steady flame, dimmed only when his powers failed under the sapping of that mysterious and relentless thing, malignancy. It is indeed, not improbable that his untimely death at the age when life should have been in the fullness of its strength, was indirectly due to that lowered vitality inevitable where proper time for rest of body and mind was not granted.

He was an omnivorous reader, not only of journals and books devoted to his particular profession, but to all departments of science and human knowledge, and one endowed with such unusual powers of acquisition, and that had demonstrated such brilliant ability in putting his knowledge to the practical test was out of the ordinary and placed him on a plane reached by few.

In speaking of Rafinesque and his many accomplishments one is forced to the conclusion, that he must have been spurred on by some divine inspiration, as Oliver Wendell Holmes has said, "There are one-story men, two-story men, and three-story men. Fact collectors are one-story men, two-story men reason about facts, three-story men are those who are described as inspired men." Rafinesque was all of these.

In conclusion the following may be said this especially applies to his latter days, that the dead in the flesh are ofttimes happier in the spiritual state; that what was frail mortality has become immortal. Especially blest was he to whom release from pain, after long suffering in mind and body, came, for his was,

Love and light,
And calm thoughts regular as infant's breath,
And three firm friends, more true than day or night
Himself, his Maker, and the Angel Death.

His name and his labors will continue to go down to posterity with an ever increasing interest and admiration for,

Of all the noblest things of life,
The highest sure is fame;
For though the body lies in dust,
Lives on the honored name.

# EMIL NOEGGERATH (1827–1895)

## *By* HERBERT S. REICHLE, M.D.

CLEVELAND, O.

EMIL NOEGGERATH is a noteworthy figure of American Medical History of whom little is known in this country because of his return to Germany in the later years of his life. He should have particular interest for us because his brilliant addition to medical knowledge, the recognition of the latency of gonorrheal infection and its rôle in the production of sterility, was based on his experiences in hospital and private practice in New York City. The importance of this observation is common property of all physicians today. In Noeggerath's time, before the discovery of the gonococcus by Neisser, a gonorrheal infection was regarded even by the greatest authorities as cured shortly after the purulent secretion ceased. The clinical acumen with which Noeggerath untangled the threads of evidence and neglected the bounds set by tradition and orthodox teaching, entitles us to compare him with Semmelweis. The parallel may also be extended to the fate of his discovery, for without the means of proving his thesis, it was laughed down, forgotten and resurrected by others after the bacillary era was opened by Neisser's work.

Emil Noeggerath was the son of a professor of mining engineering, at the University of Bonn, Germany, a gentleman of varied interests, who seems to have been intimately acquainted with Goethe and many of the notable literary and scientific men of his time. He was known for the liberalism of his political views, an attitude of mind not without its dangers in those days of post-bellum reaction, and one which he inculcated into his descendants. The young Noeggerath was educated in Bonn. It was a time in Germany when the old school of natural philosophy was breaking down before the vigor of the new movement of exact science which had come from Vienna and Paris, and which was to bear such marvelous fruit in the Germany of the next fifty years. Noeggerath's life and work shows that he accepted enthusiastically the spirit of conscientious labor and minute research which this school demanded. After post-graduate work in Berlin, Vienna, Prague and Paris, he settled down in one of the pretty towns along the Rhine as a practicing physician. Hardly a year later, however, an offer was made him which appealed to his scientific interests and which, though fruitless, brought him to our country. It was the offer of a position on the faculty of a new college which was to be founded in St. Louis. The plans never materialized and Noeggerath, with his family, was stranded in a strange country. Those of us whose parents or grandparents were once "greenhorns" can appreciate the position of such a man. To the difference of environment, so great in those days of 1857, came the difficulties of language and, most serious of all, a chronic ailment, a pulmonary affliction which after many years ended his life through miliary tuberculosis. Nevertheless, he developed an excellent practice in the City of New York and following his interests in gynecology and obstetrics, became in time a recognized authority in these specialties, a self-made specialist as it were, an evolution quite recognized by us but somewhat looked at askance by the more methodical Europe.

He was associated with the former German Hospital, Mt. Sinai, New York Women's Hospital and St. Mary's Female Hospital in Brooklyn and was later appointed Professor of gynecology and obstetrics in the old Medical College of New York. He seems to have been one of the founders and honorary members of the New York

Obstetrical Society. Jacobi was a good friend of his and the two are said to have published a textbook on gynecology, which, however, did not sell, so that the greater number of volumes were returned to the paper mill. Noeggerath represents, with Jacobi, one of the principal connecting links of the American and the German medical world. In this office he suffered many rebuffs from Europe, which at that time did not deign to learn anything from a "primitive America," and from his own fellow colleagues who regarded the alien with mistrust. His extremely critical mind also seems to have brought him much animosity. This excellent characteristic of Noeggerath is particularly evident in his opposition to the wild orgy of surgery which followed the brilliant publications of American surgeons, such as Emmett. In his conservatism and his disinclination to interference with the mechanism of the body, either in gynecology or obstetrics, in his biological, rather than crude mechanical vision of the surgeon, he was most strikingly modern. He valiantly asserted that the cervical tear was a secondary and harmless phenomenon and not deserving of the serious treatment of the day. Many New York surgeons opposed him, as also the Europeans such as Saenger, Ahlfeld and Fehling. The good results of this operation in the treatment of sterility he saw "not in the dilatation of the canal but in the circulatory and nervous reaction, which have been brought about by the operative process of healing."

He was intensely interested in bacteriology and sought many years for the organism of gonorrhea. Lister's work he immediately accepted and translated it into a procedure of gynecological examination which was far beyond anything found in the best of medical books of the day, but which is only that which we all demand today. A quotation from his publication "Die Latente Gonnorrhoe" illustrates this:

> As long as we do not know . . . when the contagiousness of gonorrhea ceases, we are justified in believing that a minimum amount of the secretion of a woman who has suffered from latent gonorrhea may, if carried to a healthy woman, infect her. The technique with which we lubricate and cleanse the exploring fingers and instruments, offers absolutely no protection against contagion. For some time, I have used a mixture of soap, glycerin and absolute alcohol, to which six to ten per cent of crystalized carbolic acid is added.

His lectures and publications are remarkable for their insistence on the importance of pathological histology in the study of clinical pictures. This awakened his interest in malignancy and he contributed a painstaking bit of research into the etiological rôle of parasites.[1] He denied their importance, recognized many of the "discoveries" as artifacts, and proposed a theory of carcinoma genesis which emphasized the importance of nuclear substances. An interesting predecessor of many modern bacteriological methods was his suggestion in 1887 that bacteria might be isolated by growing them in gelatin to which aniline dyes of different color reactions had been added.

Noeggerath's claim to scientific fame, however, rests upon his publication "Die Latente Gonnorrhoe im Weiblichen Geschlecht" (Latent Gonorrhea in Women), published in Bonn, 1872.[2] To appreciate the importance of this brochure of some 125 pages, we must realize that it appeared three years before Koch's publications and seven years before Neisser's discovery. The attitude of the medical world toward the subject is carefully reviewed by Noeggerath in the first pages of his brochure. There was a suspicion that gonorrhea was caused by some such organism as that which had been described by Pasteur. The acute stages were recognized but therapeutically there was unwarranted optimism and some of the greatest authorities were of the opinion that as soon as the secretion had become clear, all danger of infection had ceased. In particular, there does not seem to have been any conception of the gonococcus as an organism which could remain latent somewhere in the mucous membranes and recover its virulence at optimum stimulation. The insidious character of the disease in the female was entirely missed and the complications in the train of gonorrheal parametritis were interpreted as the results of post partum septic endometritis or as an incomplete involution.

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[1] Noeggerath, E. Beiträge zur Struktur und Entwicklung des Carcinoms. J. F. Bergmann, Weisbaden. 1892.

[2] Noeggareth, E. Die Fratenk Gonorrhoe im Weiblichen Geschlacht. Boun Max Cohen & John, N. Y. 1872.

Noeggerath did not doubt but that there was an organism which was the chief factor in the production of gonorrhea. He recognized that particularly in females, the acute stage might be very poor in characteristic symptoms and that in males and females it might be awakened out of a long period of latency by many different agents, such as, unusual degree of sexual activity, parturition, use of uterine sounds, any uterine medication or manipulation, menstruation, etc. He says:

> One must conclude that there is practically no manipulation in and around the uterus which can not at some time lead to very serious and perhaps even fatal results. It would be but to abandon vaginal injections if, as we have shown, they can result in very serious and even dangerous afflictions, just as the nasal douche which . . . has caused many a patient to lose his sense of hearing.

He perhaps deserves the priority in recognizing the difference between the puerperal pelvic disease and that which appeared without relation to the puerperal state and which he ascribed to a gonorrheal infection. He showed that the infection may remain latent for many months or years and be stirred to activity by any of the above agencies. He felt that the condition meant chronic invalidism for the woman and insisted that its sequelae were the cause of the greater part of sterility in woman and man. His dictum that no examination for sterility should be undertaken without the examination of the sperma, is one of the noteworthy features of his publication. He pointed out the social importance of these observations:

> Finally, as regards the treatment of sterility, so often a symptom of latent gonorrhea, it appears to me even with my limited experience, that without doubt the method used today, which regards the woman as the only object of treatment, must be abandoned . . . If therefore, a man in visiting a brothel, risks not only his health as one believed to date, but also carries the germ to infect his future wife, so that the health, of the women of the community is imperiled and their ability to bear children reduced, it were time that the public health authorities would find methods to reduce in some degree, the extent of this vice.

Noeggerath returned to Germany in the year 1885 and settled down in the health resort, Wiesbaden. His ailment had compelled him to this step, but it did not prevent him from continuing his scientific research, which was stopped only by his death in 1895. He should be remembered not only for the excellent fruits of his scientific labor but also for his exemplary character as physician, man and worthy child of the liberalism and of the passionate pursuit of knowledge, which characterized his century.

The author wishes to thank Dr. Paul Diepgen, Professor of Medical History, University of Freiburg, i. B., Germany, for much of the information which this article contains.

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# HISTORY OF THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF GEORGIA

## A SHORT STORY OF ITS EARLY STRUGGLES*

*By* ROGER G. DOUGHTY, B.S., M.D.

COLUMBIA, S. C.

THE fundamental function of any collegiate institution is the training of men's minds, making them capable of accurate observation, correct thinking, clear reasoning and conscientious work, that the body of the world's learning may be safely committed to their care. Except for the existence of such a class, science would be impossible, learning unknown, and wisdom and understanding would vanish from the face of the earth. Fortunately, most institutions are founded with these important principles indelibly engraved in the hearts of the men entrusted with the work.

With these things in mind let us look a little into the history of the Medical Department of the University of our neighboring State, Georgia.

In 1828 the citizens of Augusta, a flourishing city of the commonwealth which had been the first in this country to provide for higher education at public charge, desired to further the efforts of their State by establishing a medical school for the training of her sons. Largely through the efforts of Milton Antony, M.D., and a small group of men fired by his enthusiasm, the Medical College of Georgia was organized. It became the Medical Department of the Univeristy in 1859. The union with the University was not formally consummated until 1873 because of the outbreak of the Civil War. Even this connection with the University was only a nominal one and the institutions were not firmly welded until many years later.

Of the men who were the founders and of their struggles, ambitions, hopes and disappointments we have a very meagre record indeed. From their medical articles published in various periodicals and from the rather short, sketchy and too often laconic notes of the faculty meetings, together with the available articles from the newspapers of the day, we can piece together the more important happenings in the school. Here and there we can even get a momentary contact with an individual.

There is a portrait of Milton Antony in the lobby of the medical college building. Beneath it a marble slab with (in part), the following inscription.

> In memory of Milton Antony, M.D., founder of this college of his profession, a martyr to Humanity and duties during the fatal epidemic of 1839 . . . True to his own favorite maxim, the vigorous will is almost omnipotent, he overcame by study the defects of education and patiently toiling to eminence bequeathed to posterity a noble example of genius and industry animated and directed by patriotism and benevolence.

He was not a prolific writer as some of his colleagues were and there are available only some half dozen articles written during the latter part of his life. These show a moderately large general vocabulary and a fairly extensive acquaintance with the literature of the time. The minutes of the faculty meetings unfortunately mention few names in recording the deliberations of that body so we gain but little information about him from that source. That he was honored and revered by his associates we have ample evidence both in the frequency with which he is mentioned by others and in the phrases used. Years after his death we find the Faculty, still composed of his younger associates, making provision for the proper care of his grave which is on the campus of the old college.

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* Read before the Medical Club of Columbia, South Carolina, November 15, 1926.

In addition to his labors on behalf of the medical college, Antony conceived, inaugurated and edited until his death, the Southern Medical and Surgical Journal. Publication was begun in 1832. It is significant that at his death in 1839 issuing of the Journal abruptly stopped until its reorganization at the instance of the students themselves. The tone of the Faculty meetings changed also, upon his death.

Associated with Antony, and probably his chief aide, was Dr. Louis Alexander Dugas, gentleman and scholar. His father, Louis Rene Dugas de Vallon, gentleman of the old school, had been forced to leave Paris and take refuge on his estates in Santo Domingo, in 1790. The French Revolution followed him there, however, and in 1791 he landed at Georgetown, S. C. with his family, almost penniless. After wandering from Georgetown to more fortunate relatives in Maryland and back to north Georgia, the family finally settled in Augusta. After the death of young Dugas' father, his mother, a well educated French woman, opened a seminary. She took charge of Dugas' education until he was fifteen years old when he was sent to the Academy of Richland County, a boys' high school in the city.

Dugas studied medicine at the University of Maryland. After graduating there he went to Europe for three years further study. There he was at various times under Beaumont, Gay-Lussac, Velpeau, Dupuytren, Lisfranc, Villemain and finally Guizot. We see therefore, that he did not limit his studies to medicine but ran the gamut through to the "History of Civilization." He returned to Augusta in 1831, just in time to take part in the organization of the college.

Dugas contributed largely to Antony's Journal. He it was who revived and edited it after Antony's death. He was careful to have on the editorial staff some of the younger men and in consequence the publication survived long after he retained no more than a nominal connection with it.

In 1834 while on another trip to Europe he was elected a member of the Geologic Society of France. He was the Vice President of the International Medical Congress held in Philadelphia in 1876, where he announced his then radical doctrine of opening the abdomen and suturing any perforated viscus in all cases of penetrating wounds of that cavity.

Among his published articles is one developing the differential diagnosis of dislocations of the shoulder joint by placing the hand upon the opposite shoulder and bringing, or not being able to bring, the elbow to the thorax. Another reports 3 operations under mesmeric influence during which impartial observers agree, the patients showed no signs of pain. There is also a reply to a lecture given by a member of the Faculty in which the lecturer pointed out that hysterical people often have anesthesia and severely condemned mesmerism. Dugas also excised a lipoma from the leg of a negro after having frozen the parts with ice and salt.

Another prominent figure in the original Faculty was Paul Fitzsimmons Eve, who upon graduation at Pennsylvania, like Dugas, sailed for Europe. He met Lafayette and Carl von Graefe and was able through their influence, to get through Prussia to Poland, where he offered his services in the war against Russia, "remembering" as he said, "how the gallant Pulaski had fallen at the seige of Savannah." He also, returned from those troubled shores in 1831 just in time to join in founding the school. He served on the Faculty until he went to Nashville to become professor of surgery there. He was called by several other schools, among them New York University, but he refused to move a second time.

The first dean of the school was Dr. L. D. Ford, friend and confidant of Dugas. His chief claim to fame lies in his advocating the early administration of large doses of quinine in malarial fevers, the so-called abortive treatment of the time.

A South Carolinian, J. A. Eve, graduate of the Charleston College, and A. Cunningham completed the Faculty. G. M. Newton soon joined them and was afterwards dean for many years.

One other man, Dr. Henry Fraser Campbell, who became a member of the Faculty several years later, because of the influence he wielded and because of his intense activity, deserves some separate mention before we turn to the activities of the Faculty as a whole. Dr. Campbell graduated in the class of 1842. Prior to the Civil War he was professor of anatomy for several years. During the war he acquired quite a reputation as a surgeon, "successfully controlling" hospital gangrene in 15 cases by ligating the main artery of the extremity.

Following the war he went to New Orleans as professor of surgery, but returned in 1869 to take the same chair in Augusta. In addition to his activities in the Faculty, and in spite of the demands made upon him by an extensive private practice, he was a prolific writer and assumed the editorship of the Journal after Dugas gave up active work in its behalf.

Among his articles we find "The Abortive Treatment of Gonorrhea by Silver Nitrate," the "Abuse of Diuretics," "Strangulated Umbilical Hernia during Pregnancy," "Typhoid Fevers," "The Unstriped Muscle," and "Traumatic Tetanus." He wrote several articles dealing with the vaso-motor system and undoubtedly has priority over Claude Bernard. Campbell published his work in 1850, while Bernard published his in 1853 and 1855. There is considerable correspondence about the matter with Dr. Marshall Hall in England, who was much interested in the reflex motor system and had quoted Bernard, giving him priority. The records of this dispute were published in the London Lancet and in the Southern Medical and Surgical Journal, as well as in several other periodicals. All allowed Campbell's claims. Campbell also probably has a legitimate claim to the discovery of the genupectoral position for displacement of the uterus.

While in charge of the dissecting room he had two rather odd experiences. One of the pupils while dissecting the axilla by candle light, the candle sitting upon the cadaver's chest, in some way loosed the hook that held the arm extended. The arm freed came down against the chest wall rather forcibly and, to the student's consternation, the cadaver blew the candle out, leaving the room in darkness. Shortly after this, Campbell while assisting a student to get his "stiff" out of the barrel of alcohol in which they were kept, and on to the table, directed the boy to stand on the table and catching the arms, pull the subject up, into place. To everyone's surprise the cadaver came out of the barrel with the mouth making a loud sucking noise. These two experiences were not forgotten and shortly after that when called upon to treat a patient suffering from an over-dose of laudanum, Dr. Campbell directed what was probably the first attempt at artificial respiration in the sitting posture. It was entirely successful.

We see that from its inception, the school had able men upon its Faculty, men of high ideals, considerable ability, and not lacking in originality. In order to understand its rise, rather sudden fall, its regeneration and long apathy with virtual death we must remember Antony's early death, Dugas' ageing and the advent and death of Campbell. Each fluctuation in the fortunes of the school was synchronous with a similar fluctuation in ideals. In the presence of even a little comparative monetary prosperity idealism seems to have been unable to exist, while in poverty no obstacle was too great to be overcome.

Early in 1832 a constitution was drawn up providing for a Board of Trustees and a Faculty, the organization proceeded along orderly lines. Actual instruction was probably begun in 1832 though available records date only from October, 1833. The Faculty issued tickets at a stated price for each course. These tickets had to be presented by the students before they were admitted to the lectures or to the dissecting room:

The proceeds were used to pay the expenses of the school, a considerable portion being divided among the Faculty members as compensation for their work. This method of operating was used in most of the schools of the time:

At the second recorded meeting of the Faculty it received,

> Information of the passage by the Legislature of an Act appropriating ten thousand dollars to provide an outfit for the Medical college and fifty lots (with the consent of the City Council and Trustees of Richmond Academy) of the City Commons and altering the name of the Institute to the Medical College of Georgia.

At their third meeting we find the dean "authorized to pay to each professor the sum of two hundred and fifty dollars from the receipts of the present year."

Early in the following year plans were begun for the college building, a seal was designed and ordered, and the first batch of diplomas was contracted for. In March Dugas was delegated by the Faculty to go to Europe and purchase a museum and library for the college. The funds for this purpose were apparently raised without much difficulty, for Dugas sailed about six weeks after his trip was authorized. It is probable that each member of the Faculty contributed one thousand dollars to the fund. By the last of April, 14 students had presented, their theses had been examined individually by the Faculty, and 13 presented with their diplomas. These men had been required to attend two sessions of six months each, but had probably repeated the second six months what they had had the first.

At the beginning of the second school year the Faculty employed a "Resurrection man" to furnish subjects at 75 cents each, "an assistant being furnished" by the college. They also notified a Mr. Morrison of Mississippi, that upon repetition of his "recent over-indulgence in strong drink," he "will be expelled" from the college. At the close of the school year they refused to recommend to the Board of Trustees the issuance of a diploma for Mr. Galluchat until "he shall have given evidence of his reformation in temperance" for a period of one year. They also passed the following resolution and sent a copy of it to McKinne by the janitor:

> Whereas, Mr. John McKinne, Jr., has presented as an original thesis a production not his own and thereby been guilty of plagiarism, Resolved: that he be not considered eligible for the Doctorate.

The college building was finally completed about 1837 and was immediately occupied. The Faculty met practically every week during the scholastic year. G. M. Newton and C. Davis were added to the membership about this time. The school grew in influence and prospered. The loss of Antony was a severe blow but the Faculty meetings continued to be well attended and in 1844 forty students were graduated. There were however evidences of a coming decline.

A few years before Antony's death the school had tried to get a meeting of the Medical Colleges of the United States in convention for the purpose of proposing that some standard of education be adopted. The Georgia College had a scholastic year of six months, while most of the schools were in session only three or four months. The full expenses of a student for instruction alone, amounted to only $133.00 the first year and $163.00 the second, the extra thirty dollars constituting a diploma fee. The outside, or living expenses, incurred during a six months session however, were obviously twice as much as those incurred during a three months session and this counted heavily against the Georgia school in the matter of obtaining students. After a few years of struggle, we find a notice of surrender in the February number of the Southern Medical and Surgical Journal of 1838. It is an announcement that for the coming year the term will be reduced to four months and it accuses the other schools at the same time as explanation for this crime against medical education.

We have already noticed that the number

of graduates had reached 40 in 1844 and this increase in attendance was, of course in part, due to the shortened sessions. By 1848 there were over fifty candidates for the degree, of whom some forty odd were recommended to the Trustees for the Doctorate.

The school was apparently prospering but the standards had already been lowered. The Faculty meetings were being more and more given up to discussion of students' fees and the declaring of dividends for the faculty, the reexamination of students who had failed on the first trial, and so on. The meetings were so poorly attended and members so often tardy that a system of fines had to be instituted. In 1850 Paul F. Eve's departure for Nashville left only Dugas, Ford and the younger Eve of the original faculty. Vacancies had of course been filled but, with the exception of Newton, either by men who remained only for a short time or by those whose mediocrity only hindered. Dugas was indeed a lonely idealist.

In 1854 the Chair of Comparative and Microscopic Anatomy was created for and offered to Henry Fraser Campbell, who for several years had been a demonstrator in anatomy. His acceptance was to strengthen the Faculty immensely as time went on but the influence of his character and work was not immediately felt. The meetings became more and more irregular and the gradual decline, interrupted here and there by a spasmodic and short-lived flare of enthusiasm, continued until the outbreak of the Civil War put a stop to all activities.

The various members of the Faculty, of course, rendered service to the Confederacy, more or less conspicuous in some instances. It seems remarkable indeed, that after having passed through that terrible four years, the nucleus of a faculty that had previously shown so many signs of apathy should have again met on August 28, 1865, and ordered published an announcement of the reopening of the college, the following November. They seem to have taken up the work with renewed enthusiasm, for an editor was selected and publication of the Journal resumed almost immediately. The first Faculty meeting was attended by Campbell, but his resignation followed pursuant to his acceptance of a post in New Orleans. Four new members were elected to fill the vacancies.

Among the new appointees was one man of really remarkable attainments, G. W. Rains. He was an honor graduate of West Point and a former assistant professor of chemistry, geology and mineralogy there. He had distinguished himself in the Mexican War while under Scott, whose aide he was, and he was the genius responsible for the creation and successful operation of the ammunition plants which had supplied the Confederate Armies east of the Mississippi. Blessed with a real thirst for knowledge, particularly proficient in chemistry, he rejoiced in two attributes that are rare indeed, the ability to impart his knowledge and to inspire others. His influence was felt even years after his death and, with that of Campbell who returned in 1868, was in no small way responsible in later years for the conservation of the fast failing vital forces of the school and for its final rehabilitation.

For several years the Faculty as a whole worked diligently and faithfully. The handicaps under which they labored were tremendous. Systematic instruction of students in the hospital dispensaries was faithfully prosecuted. Contributions to the Journal were many. The student body slowly grew in size and the outlook for the school seemed excellent in spite of the prostration of the community. In 1872, with a graduating class of twenty-one members, the financial statement shows an income of $3,800.00 (from matriculation fees of course). Of this money about $1800.00 was spent in the operation of the school, the remainder being divided among the professors. By 1875 there was a graduating group of about 30, with only $2,800.00 received from them. We infer that the fees had been reduced.

From about 1870 on, there are increasing evidences of internal dissention, veiled at first, they became more and more obvious, more and more frequent. In 1877 this culminated in a wrangle that all but closed the doors of the college in spite of the fact that in 1873 a real contact with the State University had been made which should naturally have been followed by annual appropriations and a sounder footing than the school had ever before had. It was almost entirely through the efforts of Campbell and Rains that disintegration was averted and the struggle continued.

From this point onward there was a slow decline, interrupted here and there by extremely short periods of slightly renewed activity as the enthusiasm of some younger man was temporarily felt before it was completely smothered. Dugas was now an old man slowly tottering to his grave. Campbell, his energies largely used up in the unsuccessful fight to keep alive the Journal, and probably disgusted at the indifference shown on all sides, seems nevertheless to have been the whip that kept the Faculty together. Rains gave him aid and comfort, but both these men, like Dugas, were beginning to feel the hand of Father Time.

In closing a very brief summary of the later history is necessary. A sudden awakening and rebirth occurred in the early part of the twentieth century. Active financial support was obtained from the State, connection was established with the Carnegie and Rockefeller Foundation Boards, new quarters secured, and a full time staff for many of the major departments installed. All of this new structure was based upon the one unique asset that the medical school had possessed from its foundation and had tenaciously clung to, even when apparently in its death throes, namely; the absolute control of the city hospital for both the white and colored races without responsibility for the financial support of those institutions.

Acknowledgment is made for the rather free use of the 1916 address of Dr. H. C. White delivered before the graduating class. Other sources are the files of the Southern Medical and Surgical Journal, the minutes of the Faculty meetings and other data obtained in large part through the kindness of the Librarian and young ladies of the office force of the Medical School.

# THE STUDY OF PALEOPATHOLOGY IN FRANCE

*By* ROY L. MOODIE, PH.D.

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SHORTLY after the appearance of my volume summarizing our knowledge of paleopathology I received a request from Dr. Leon Azoulay of Paris, France, asking to produce a French edition of the volume. Subsequent correspondence and conferences with Dr. Robert Pierret have resulted in a postponement of this undertaking until a more favorable time. Meanwhile, in order to arouse an interest in the subject, I have written and Dr. Pierret has translated into French and published in the *Biologie Medicale*, two papers. One deals with the paleopathology of Peru and the other with Pleistocene evidences of disease among the mammals of the Rancho la Brea asphalt pits, as revealed in the unrivalled collections in the Los Angeles Museum.

One result of the publication of this material has been to call the attention of one of France's most noted savants, Dr. Marcel Baudouin of Croix-de-Vie, Vendée, a retired surgeon and a noted anthropologist, to the work which has been carried on in America in Paleopathology. His own publications in this field, particularly on the Neolithic remains found on the coast of France, far exceed in quantity all other publications of a similar nature dealing with the Neolithic. He complains in his letter that his bibliography is unknown in America, and he is right. His name is mentioned only once in my Paleopathology and the significance of his writings is not realized. It is partly to correct this unfortunate condition, as well as to discuss the paleopathology of the Neolithic that this discussion is written.

Baudouin's writings on pathological matters of the Neolithic extend over twenty years. Most of the articles are short, and a number not illustrated. They are often printed in obscure local periodicals, which is probably one reason why his writings have been so overlooked, and his bibliography unknown. He tells me he has written 4500 articles, relating to medical affairs, archeology of the Neolithic and Paleopathology. The forty titles I am giving are by no means all he has written on the subject, but I have chosen these as being representative, and they form a key to his other publications. His results deal chiefly with spondylitis deformans in the cave bear: prehistoric articular rheumatism in animals: prehistory of gout and the paleopathology of ancient man. Some of his conclusions we may not accept, but his observations we must admire, both for their quantity and for their excellence. He was among the first to apply the roentgen-ray toward a solution of ancient lesions.

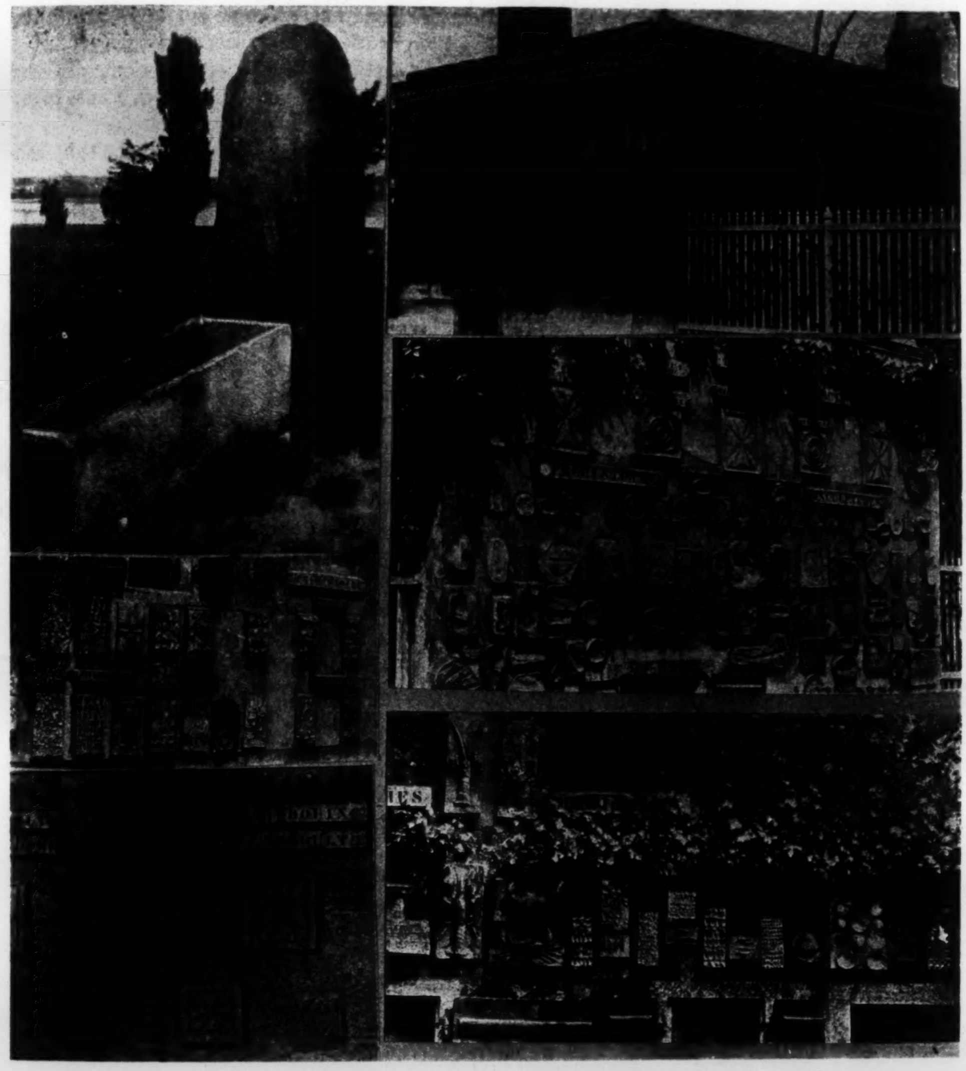
He attaches more importance to the influence of domestication than most of us would be willing to grant, since we know so little about this matter. He attributes rheumatic afflictions in animals to some influence of contact with man. But we must not be too critical. In our opinion disease is the same whether seen in man, animals or plants, and is subject to the same laws.

The pre-Columbian Peruvians early domesticated a dog (*Canis ingae*), which has been under domestication long enough to have differentiated into a number of varieties, according to Professor Nehring.

The ancient Egyptians had a variety of domesticated animals, yet Lortet and Gaillard did not find that the contact with man had influenced the mammalian diseases, of which there are a number.

Neolithic man possessed the domesticated dog, pig, ox, sheep and possibly other animals, but no study of the relation of disease between the human beings and their domesticated animals has ever been made.

In the Pleistocene, domestication is suggested by conditions found in the large cave in South America where there are indications that the ground-sloth, now extinct, may have been domesticated. There has been an abundant discussion of this discovery and at least 16 papers on *Grypotherium* published. We must await more definite data before we can decide whether ancient animals acquired their diseases from man, or vice versa, or whether disease arose in both man and animals in response to the same factors in all.



Neolithic Remains Found on the Coast of France and Collected by Dr. Marcel Baudouin.

These Pictures Are Taken from Post-cards Which Dr. Baudouin Has Sent Me. The Explanations Are Given Here, Untranslated, as They Are Printed on the Cards. They Serve to Show His Home and His Unique Open Air Museum.

*Upper left:* Croix-de-Vie, Vendée, Cimetiére. Un Menhir en granit classé comme monument préhistoriqué. (Dr. Baudouin Writes: "the menhir of My Future Tomb.")
*Upper right:* Croix-de-Vie, Castel Maraichin-Musée en plein Air-La Maison aux Sculptures. (Dr. Baudouin's Home.)
*Center left:* Castel Maraichin. Musée de Plein Air. Préhistoire. Silex travaillés.
*Center right:* Castel Maraichin. Musée de Plein Air. Folk-lore. Sculptures Préhistoriques.
*Lower left:* Castel Maraichin. La Maison de l'Armoire Louis xiii.
*Lower right:* Croix-de-Vie, Castel Maraichin. Musée de plein Air-Zoologie maritime.

We may safely assume, I think, that

Rouillon[38] has reviewed most of Baudouin's work on the Neolithic. This octavo publication of 258 pages, with 86 figures in the text and 10 plates is a worthy accomplishment for any scientific man. The press work is not all that could be desired, since the poor quality of paper renders the execution of half-tones ineffective.

It will not be necessary here to review at great length Rouillon's discussion of pathological anatomy of ancient man and his attempts at surgery. The work is abundantly annotated with bibliographic references, and adequately illustrated. The diseases of Neolithic man seem very mild when compared with some of the terrible afflictions seen in the ancient Egyptians. This may not be a true index of actual conditions. The Egyptians were sheltered and reasonably safe, but Neolithic man had ever to be on the alert, and the diseased or injured Neolithic individual was soon eliminated in the struggle. He was unable to adapt his crippled body to the strenuous life men led in those days.

Rouillon has made no startling discoveries, nor has he drawn any surprising conclusions. His work is a worthy deduction from the guidance of his master Dr. Marcel Baudouin.

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3. La préhistoire de la luxation congenitale de la hanche. Paris. *Homme prébist.*, 1906, Tome 7, 129–139, figs. 2.
4. Étude d'un crâne néolithique à double trépannation. *Homme prébist.*, 1907, V, 207–215.
5. Un cas d'exostose du tibia, chez un sujet de l'époque néolithique inhumé dans l'allée couverte de la Planche à Puare à l'Ile d'Yeu (Vendée). *Arch. prov. de chir.*, 1908, XVII, 93–101.
6. La Grotte de Jammes, à Martiel (Aveyron); étude anthropologique et anatomo-pathologique des ossements trouvés. *Bull. et mém. Soc. d'anthr. de Par.*, 1908.
7. Trouvaille d'un Crâne atteint d'ostéopériostite alvéolodentaire, etc. *France Méd.*, Par. 1908, no. 24, 4 v., 462–3, 2 figs.
8. Étude d'un crâne préhistorique à triple trépanation, exécutée sur le vivant. *Arch. prov. de chir.*, Par., 1908, XVII, 362–376.
9. Affection nouvelle préhistorique des vertébres cervicales. Soc. des Chir. de Paris, 1910, *Paris Chirurg.*, t. II, no. 7, 126.
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13. III. Traces d'Action humaine sur le Crâne vivant due a une coutume spéciale La Déformation cranienne annulaire. *Arch. prov. de chir.*, 1911, Tome XX, 597–607; 649–673.
14. Les Affections des os a l'Èpoque Néolithique. (Découvertes de Vendrest) Par., 1911, in 8°, 73, 9 fig.
15. Une fracture préhistorique du tiers inférieur du radius, consolidée et guérie. *Arch. prov. de chir.*, 1911, XX, 351–352.
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17. La, Poly-arthrite alvéolaire a l'Èpoque Paléolithique. *Semaine méd.*, Par., 1912, XXXII, no. 43, 170–171, 2 fig.
18. L'Ostéite déformante chez l'Homme de la Pierre polie. *Compt. rend. Acad. de sc.*, Par., 1912.
19. La Poly-arthrite alvéolaire depuis la Quaternaire jusqu'a l'époque romaine. *Bull. Synd. des Chir. Dent. de France*, 1912, Tiré à part, Vannes, in 8°, 16, 2 figs.
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24. Les Affections Dentaires découvertes dans l'ossuaire de Bazoges-en-Pareds (Vendée) (èpoque de la Pierre polie). *La Presse Dént.*, Par., 1914, XVII, 140–145, 1 fig.

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26. L'Ostéite déformante chronique, dans l'Ossuaire de Bazoges-en-Pareds (Vendée). *Bull. Soc. franc. d'hist.*, Par., 1914, XIII, 2, 96–102.

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28. Sur l'Arthrite chronique de le Métatarsien á l'Èpoque Néolithique. *Bull. et Mém. Soc. d'anthrop. de Par.*, 1915, 34.

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36. Baudouin, Marcel. La signification véritable des mutilations dentaires ethniques et préhistoriques. *La Semaine Dent.*, 1924, VI, nr 33–34.

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39. Baudouin, Marcel. Études de quelques radiographies d'os d'age de la Pierre Polie. *La Semaine Dent.*, 1924, VI, No. 37.

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# FEES IN MEDICAL HISTORY*

*By* HOWARD DITTRICK, M.B., (TOR.)

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MEDICAL fees constitute an index of the training of the profession at any given period, and of the standing of its members in the esteem and confidence of their own community. Any consideration of the subject, because of rarity of data, consists of the arrangement of isolated bits, strung like beads on the thread of the historical development of medicine. A quest for such information becomes a diversion for leisure hours; an intriguing meandering journey among the colorful temples which were the shrines of ancient medicine; among the courts of caliphs, emperors, popes and kings; and lastly, among the consulting rooms of the masters of medicine.

The pursuit of this theme was suggested by Osler's idea that volumes of his recorded fees should be preserved for their probable interest to posterity.

The art of healing has passed through four distinct phases, a review of which will serve to illuminate the study of the rewards of its practitioners (ref. no. 26, p. 597).

1. A Patriarchal Phase, which corresponds to the origin of society, to an epoch when the chief of a family united in himself all power and was the depository of all traditions.
2. A Sacerdotal Phase, which reigned long in Egypt, flourished in Greece from the Trojan War to Hippocrates, and which reappeared in Europe during the Middle Ages. During this phase the healing art was usurped by the priesthood. But because the sacred precincts of the temples would have been profaned by birth or death, and because the letting of blood, and later, the necessary studies of anatomy by dissection were forbidden to priests, therefore midwifery and surgery grew up outside the priesthood as arts to be practiced by slaves, menials and charlatans, as well as by respectable practitioners working outside the temples.
3. An Unlicensed Lay Phase, the worst of all in regard to the dignity and morality of the profession.
4. A Licensed or Organized Lay Phase, wherein medicine and surgery were combined outside the priesthood and its limitations.

The earliest Patriarchal Phase is almost lost in the mists of antiquity, and only an occasional vestige of it finds place in this study. Passing on to the Sacerdotal Phase, the origin of medicine in the temples is more clearly understood when it is remembered that ancient peoples believed not only healing to be the gift of the gods, but also, pestilence, disease and death to be the punishment of their wrath. To regain their favor was to regain health, hence in its origin, healing was intimately connected with religion and mythology.

In both Greece and Egypt, medicine had its rise in these sources and came down in two main streams, the one flowing through priestly channels to Hippocrates and his followers, the other through physicians who practiced outside the temples, though generally in friendly relation to them.

Following up the priestly channel, we find that in the early days of Babylonian and Egyptian medicine, the sick were exposed in public that they might profit by the experience of others who had been thus afflicted (ref. no. 14, p. 104). At a later date, those cured were required to inscribe in the temples their disease and the method of its cure. The temples of Canopus and Vulcan (ref. no. 26) at Memphis, became the chief depots of these registers which the priests kept with greatest care for purposes of consultation. From the mass of data the priests formed a medical code called the Sacred Book, to the provisions of which they were obliged to adhere. If in so doing the patient's life was lost, they were not held responsible, but if they varied from the code, and the result was unsuccessful, they were punished with death (ref. no. 26, p. 30). In this manner medicine came to be the prerogative of the priesthood, who alone had access to the records and who also had the necessary education to comprehend them. The temples became dispensaries, in which advice was given, remedies administered and students trained. At first training was given only to those of the priesthood, later it became accessible to any person who could pass the initiatory tests and pay expenses of instruction (ref. no. 26, p. 90). This movement was given impetus in Greece by the dispersion of the Pythagoreans early in the fifth century B.C. Promulgation of the medical doctrines of Knidos and Kos, collected later as the Hippocratic works, assisted in opening the secrets of practice to the profane (ref. no. 26, p. 298).

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* Read before the Academy of Medicine, Cleveland, Ohio, May 21, 1926.

Meanwhile physicians outside the temples were maintaining offices, conducting hospitals equipped with consulting rooms, operating rooms and instruments, and holding office as city physicians of large cities, paid by public funds.

Both these streams were merged in the temple schools of Kos, Knidos, Kroton and finally Alexandria. The healing art emerged from these schools, enriched by painstakingly recorded observations, clarified, codified, a fit foundation for later science.

The methods of the temple healing were two (ref. no. 14, p. 228):

1. Direct, that is, by intervention of the deity or transmission of divine power by means of a sacred object or agent.

2. Indirect, by laying on of hands by the god or his priests; by divine power transmitted through animals (serpents or dogs being commonly used in Aesculapian temples), or by oracles, visions or dreams, under which classification came the dreams of temple sleep.

Having reviewed the course of medicine during the Sacerdotal Phase, we may now enjoy the gossip of the ancients regarding the fees of the period.

In part of the oldest known code of laws, that of hammurabi of Babylon,[13] circa 2250 B.C., is included specific regulation of the practice of medicine, the scale of fees, and the penalties of malpraxis. Fairly recently these laws have been deciphered from the original block of black diorite, at the top of which is a relief showing the king receiving them from the Sun-god. Replicas of the stone were set in public places, that anyone might determine the application of the laws to his own problem. The following are excerpts from clauses of medical interest:

> If a physician operate upon a gentleman for a severe wound with a bronze lancet, and save the man's life, or if he open an abscess of the eye and save the gentlemen's eye, he shall receive ten shekels of silver as his fee.
>
> If he be a freeman, he shall pay five shekels.
>
> If he be a slave, the owner shall give two shekels to the physician.
>
> If he operate upon a gentleman for a severe wound and cause his death, or open an abscess of the eye and destroy the eye, they shall cut off his fingers.
>
> If he operate on a slave for a severe wound and cause his death, he shall restore a slave of equal value.
>
> If he open an abscess of the eye and destroy the eye of the slave, he shall pay silver equal to half his price.
>
> If he set a broken bone for a gentleman or cure his diseased bowels, the patient shall give five shekels of silver to the physician. If he be a slave the owner shall give two shekels to the physician.

These regulations would indicate that even at this early period there was recognition of surgical practice.

The influence of priestly medicine is observed in the healing of Naaman, the Syrian, by Elisha, the Prophet of Jehovah. Incidentally the fee offered by Naaman was 10 talents of silver, 6000 pieces or shekels of gold, and 10 changes of raiment. This was declined by Elisha, but his servant, Gehazi, pursued Naaman surreptitiously and importuned him. Naaman generously gave him 2 talents and 2 changes of raiment, doubling the amount requested. Elisha detected the deception of his servant, and declared unto him, "The leprosy therefore of Naaman shall cleave unto thee and thy seed forever," and he went out from his presence, a leper white as snow.[3]

The first of the Greeks who immortalized himself by extraordinary cures was Melampus, seventh century B.C., one of whose fees is worthy of note. Proetus, king of Argos, had two daughters who had taken vows of celibacy, and who became subject to fits of hysteria, during which they ran wild in the forests. Other women became sympathetically deranged. Melampus gave them white hellebore infused in milk, and caused them to be chased by youths until fatigued. They were then enchanted and made to bathe in a fountain of Arcadia, called Cletorian. For this cure the king offered Melampus the hand of one of his daughters and a third of his kingdom, which Melampus accepted on condition that his brother should have a reward equal to his own (ref. no. 26, p. 46).

Emoluments and honors granted to the Greek Democedes (ref. no. 4, p. 183) at the court of Darius of Persia, are enumerated by Herodotus. Darius had suffered a luxation of the ankle-joint, which was treated by Egyptian physicians at his court. They twisted and violently handled it, causing acute pain which persisted eight days. Someone recommended Democedes of Cretona, who was a captive lodged with slaves, and he was brought before the king in fetters and rags. Democedes applied strong fomentations and soothing remedies. Relief was immediate, and the grateful Darius presented him with 2 pairs of fetters of gold. On the protest of Democedes that these would but double his calamity, the king sent him to the apartments of the women for his reward, which proved to be a jar of gold filled with gold coins. He was granted also a sumptuous house, a seat at the king's table, and all that heart could desire except freedom to return to Greece. Later he healed the king's wife of an ulcer of the breast, and in return, she persuaded Darius to organize a military expedition to Greece with Democedes as medical adviser and pilot. Darius requested him to take all his valuables as gifts to his family, assuring him of greater gifts on his return but the wily physician profited by the opportunity to remain in his native land. At this time, the sixth century B.C., city physicians were already employed in Greece, and in this capacity Democedes was paid 1 talent (about $2000) annually at Aegina, later a similar appointment at Athens paid him 100 minae (about $2400) and at Samos a like amount.

The regulations of ancient Persians with respect to fees and qualifications have been recorded with more detail than their medicine. Persons of varying degrees of importance as listed, paid with animals of commensurate value, also listed. Thus, as Baas puts it, the famous doctors of the day were able to acquire, in place of our modern stocks, a tolerably fine collection of livestock. As for examinations, any physician who had "cut" three unbelievers and had "done for" them all, failed to pass; if however the unbelievers survived, the faithful might give him a trial (ref. no. 2, p. 27).

The course of temple medicine in Greece is marked by the celebrated temples of Asklepios, the first of which was built at Titanus, fifty years after the destruction of Troy. Very soon the worship of this god, who was the son of Apollo, spread throughout Greece and passed into Asia, Africa and Italy.

Concerning payment for benefits received in the temples, Robinson says (ref. no. 27, p. 17):

> A mortal like Socrates refused remuneration for his teaching, but Aesculapius demanded silver and gold for his services, at least so the priests claimed. Indeed on one occasion the god

so far forgot himself as to say aloud to the patient "Thou art healed, now pay the fee." Those who recovered left money or other testimonials of their gratitude. Those who received no aid believed that their offerings were rejected because insufficient and redoubled their gifts. Thus both good and bad results added to the glory of the temple and the profit of the priests (ref. no. 26, p. 63). Nor was their income entirely dependent upon curative skill, for the temple endowments were extensive and untaxable (ref. no. 2, p. 17).

At the temple of Diana at Nemi, there were unearthed more than a thousand medals and coins, as well as many statuettes of terra cotta and bronze. Relics of many kinds were deposited in the temples in gratitude for cures, a notable example being the spear and breastplate of Alexander the Great in the temple at Gortys (ref. no. 21). Grateful suppliants brought temple furniture, bronze rings, ornaments, bas-reliefs, statues and paintings. Inscribed tablets recording cures were placed on the walls, and frequently others beside them "warned of dreadful happenings if the suppliant should fail to keep his vows or should neglect to reward the service of the deity. Instances were related of cures revoked and of punishments inflicted on such recreants." There is even evidence of deferred payment being agreed upon. A suppliant possessing literary gifts presented to the god, paeans or hymns of praise, prayers, dramas concerning the life of the god. It is said that Asklepios appeared to Sophocles, commanding him to write a paean in his honor, and that such an one has been discovered. Several orations of Aristeides eulogizing Asklepios are supposed to have a similar origin (ref. no. 14, p. 233).

An inscription at the Island Cos[4] records the granting of an honorary decree to a physician who had distinguished himself by devotion to the poor during an epidemic. Another decrees a crown of gold to Metrodorus, "who during twenty years as a public physician, has saved many citizens, and now lives in poverty, having refused from them any fees."

But votive offerings of greatest interest to medicine are the models of organs, normal or diseased, made of ivory, gold, silver, bronze or terra cotta, presented in gratitude for restoration to health. Interesting examples include models of the uterus or ovary, uterus septus, uterus with salpingo-oophoritis, abdomen showing fetus in situ, and also abdominal viscera. Existing collections include almost every human organ, some of heroic size,[1] others of correct proportion, animal statuettes, which were in all probability children's toys, family groups given in gratitude for offspring.[29] Examples of pregnant women kneeling were probably representations of one of the Nixi, goddesses of childbirth.[28]

Excavations on the site of the Aesculapian temple in Rome on an island of the Tiber, disclosed shops for the sale of these offerings clustered about the approaches of the temple and stocked with large numbers of votive offerings. Doubtless these shops were under the control of the priesthood and therein were resold indefinitely, votive, donated offerings.

Pausanius relates[22] the interesting case of Phalysios who built a temple to Asklepios. He was nearly blind and the god sent a messenger to him with a sealed tablet which he was bidden to read. This seemed impossible, but hoping for benefit, he broke the seal, and as he gazed upon the tablet his sight was restored, whereupon he gave the messenger what was written upon the tablet, namely 2000 gold staters (about $9500).

Asklepios not only healed the sick, but brought the dead to life. Among those so revivified was Hippolytos, and Pindar refers to the charge that in this case Asklepios was prompted by an improper desire for gold. Because of such avarice, and because he imparted his art to mortals contrary to the will of the gods, or because Hades complained that the success of Asklepios in averting death, threatened to depopulate his realm, Hesiod relates that he was slain by a thunderbolt from Zeus. This manner of death was held to constitute proof of divinity (ref. no. 26, p. 48).

Plato, in the Phaedo, records the dying words of Socrates, upon drinking the fatal hemlock: "Crito, we owe a cock to Aesculapius, pay it therefore, and do not neglect it." The meaning of this farewell tribute, as interpreted by Dyer, is that to Aesculapius, a god who was always prescribing potions, was due that welcome remedy which cured all the pains and ended all the woes of Socrates. The offering of a cock was plainly intended for Aesculapius as the awakener of the dead to life everlasting.

Meanwhile the Egyptian Aesculapius was Imhotep (he who cometh in peace), "the god who sent sleep to those suffering and in pain," whether deities or men. He was the learned physician to King Zozer of the third Dynasty (about 2900 B.C.) and was elevated to the rank of healing divinity (about 700 B.C.). Originally worshipped at his tomb near the pyramid of Sakkara, of which he had been architect, his cult spread until his temples, called by the Greeks Asklepieia, were found in many Egyptian cities (ref. no. 14, p. 62).

Of yet more widespread worship in Egypt was Apis, the healing divinity to whom the origin of medicine was ascribed. Apis was worshipped in the form of a bull, the beautiful image of the soul of Osiris. Pausanius says that the manner of consulting the god was the same in Egypt as in Greece. The lamps were filled with oil, money was placed upon the altar, and with his mouth to the bull's ear, the suppliant whispered his request, drawing his answer from the first words of the first person he met on leaving the temple. Other Egyptian healing gods were Thoth, considered the embodiment of divine wisdom, and Ptah, chief god of Memphis, whose healing powers were chiefly connected with blindness and deafness.

An interesting example of an Egyptian amulet is that of Epet which appears in Greek as Thoueris, the Great One, having elements belonging to the crocodile, the lion, and to man as well as to the hippopotamus, perhaps pregnant. These figures were probably disease demons, made terrifying to drive away disease, and were placed in niches in the walls of houses, or worn as a help in parturition.[14, 20]

At the museum in Alexandria organized by Ptolemy at the instance of Alexander in the fourth century B.C., medicine was taught on a par with the arts and divorced from the priesthood. This became in effect the first university in the world, and its professors and fellows were appointed and paid by one of the Pharaohs.[31] It flourished in this form for about one hundred years.

But this Alexander of exalted vision could also be petty and cruel. Plutarch tells of a soldier called Hephaestion, who fell sick of a fever. During the absence of his physician Glaucus, Hephaestion partook of a fowl and a copious draught of wine, and forthwith died. Alexander vented his wrath upon the physician, whom he ordered crucified (ref. no. 24, p. 256).

Yet kings could not always command physicians, for Artaxerxes, King of Persia, is reported to have offered in vain to Hippocrates, large sums of money, and even entire cities, to come into Persia to the relief of plague-stricken provinces and armies. The Illyrians did likewise. These offers were indignantly refused. Thus he answered Hystan, governor of the Hellespont, "Say to your master that I have ample riches, that honor will not permit me to accept his proffered gifts to render succour to the enemies of Greece." But he did stay the plague in Athens, and the people decreed a crown of gold, a right of citizenship and a free education to the youth of Cos. The senate of Abdera solicited Hippocrates to visit Democritus, whom they believed insane. "If our city were all gold we would give it to restore Democritus to health," they wrote. Hippocrates convinced them that Democritus was sane, and refused to receive a fee of 10 talents tendered him in payment (ref. no. 23, p. 3).

The divorce of medicine from the temples originated in Greece, passed into Asia and

Egypt, and penetrated Rome (ref. no. 20, p. 248). Earlier medicine in Rome had been under the patriarchial form, wherein the master of the home was the doctor for the members of his family unless, as in many of the larger households, he appointed in his stead a slave or freedman who showed an aptitude for medicine. This person was usually a Greek, and later practice was largely in the hands of Greeks, frequently Greek slaves. During this era of charlatanism the health of the citizens was in the hands of any impostor who chose to call himself a doctor (ref. no. 26, p. 250). The abuse to which this liberty led during the unlicensed laity phase, became intolerable, laws were laid down to regulate medical practice, and thus emerged a legal or organized laity phase.

A Greek physician typical of his time who made his way into public favor in Rome during the fifth century B.C. was Archagathos,[4] a man who limited his practice to treatment of fractures and dislocations, to amputations and the dressing of wounds, ulcers and abscesses, internal maladies being left to quacks. In spite of the fact that he was dubbed "Carnifex" because of his methods, he was so highly esteemed that the senate provided him with a house purchased by public funds.

From the time of Constantine the Great, the term archiater is met with (ref. no. 26, p. 251) in the edicts of emperors and refers to physicians attached to sovereigns. Others, called popular archiaters, formed in each town a college which supervised all things relating to medical practice. They were empowered to fine impostors 2000 drachmae. These archiaters were honorably pensioned by the state and enjoyed various privileges, in return for which, they cared for the poor gratuitously, but charged all others.

We find in Rome, second century B.C., widely divergent opinions of the benefits of medicine. Cato writes diatribes upon the lack of common honesty and skill of the physicians of this time, culminating thus; "They make us pay dearly for obtaining our confidence, and poison us the more easily. In short remember that I have forbidden you to employ physicians."[9] This aversion is further explained by Plutarch in his life of Cato. Having heard of Hippocrates' refusal to aid barbarians who were enemies to the Greeks, Cato asserted that this was now become a common oath taken by all physicians, whence he inferred that such extreme patriotism might lead to poisoning.

Though Pliny also registers adverse criticism, he leaves record as well of those highly honored in the profession. He says that[4] Cleombrotus received a hundred talents for the cure of King Antiochus, which by different standards of estimate, range from $121,000 to $156,000. Such eminent physicians as Albertius, Arruntius, Colpitanus and Cassius and Rubrius, made 250,000 sesterces ($9750) annually. Also Quintus Stertinius was content to serve the Emperor Claudius for 500,000 sesterces per annum, which sum was double that usually paid a private physician by the emperor, but much less than that he could have earned in private practice. He and his brother, who was in receipt of a like income, after spending large sums in beautifying Naples, left an estate of 30 million sesterces($1,170,000).

Antonius Musa earned the gratitude of Augustus for the relief of an obstinate skin affection. The emperor gave Musa his freedom, Roman citizenship, much money, and the knight's ring, the latter the prototype of the ring subsequently placed upon the finger of the graduating doctor (ref. no. 2, p. 147 footnote). Also Augustus caused the statue of Musa to be placed among the Caesars. It may be of interest to note that this statue, at present in the Vatican, is widely known as that of Aesculapius. Indeed, another story has it that the head was struck off from an ancient statue of the god and that of Musa substituted.

Charmis, a leading physician in Rome asked a fee of $10,000 to attend a patient in the provinces. When we consider the dangers and inconveniences incident to travel in those days, the rewards of practice were merely commensurate with its perils.[25]

Among the distinguished patients of Galen, second century A.D., was Marcus Aurelius, who said "I have but one physician, and he is a gentleman." For a fortnight's attendance upon the wife of Broethus, Galen received 400 aurei, about $2000.[17]

The physicians Damian and Cosmos,[4] of the sixth century A.D., were two brothers, who, because they would accept no recompense, were nick-named Anargyri. When they had cured Justinian, Emperor of Constantinople, of a grave disorder, he insisted on rewarding them. They would accept nothing for themselves, but suggested that he build churches. This he did on a magnificent scale.

The status of practitioners of the period is reflected in the code of Theodoric (ref. no. 26, p. 274) which was in force in the western world from the sixth to the twelfth centuries. At this time the unlicensed lay phase had admitted swarms of practitioners of the lowest order. This code says in part:

> When a physician is called to treat a disease or dress a wound, it is necessary immediately after having seen the patient, to give security and agree upon the price of his attention. If he happens to harm a gentleman, he must pay a forfeit of a hundred sous. If the patient dies from the effects of this operation the physician should be handed over to the relatives of the deceased, who may do with him whatever they please. If in any way he cripple a serf or cause his death, he is held accountable for the restoration of another to the lord.

These severe restraints have been adjudged to be applicable only to surgical cases, the treatment of which was in the hands of individuals of the lowest order. Indeed later yet, Cervantes in Don Quixote derides the graduates of Siguenza, saying that in Spain the small universities for the sum of 2 doubloons make a doctor out of an ass.

It is related of Rhazes,[30] the first and most original of great Moslem physicians, practicing early in the tenth century, that he dabbled much in alchemy, and one story states that he abandoned this art because of a sound beating given by the caliph when he was unable to transmute metals to order. Another version maintains that he injured his eyes in preparing an elixir and was obliged to pay the physician who cured him a fee of 500 dinars. Thereupon he remarked that at last he had discovered the true alchemy and the best art of making gold, and he spent the rest of his life in the study and practice of medicine.

A similar type of physician is portrayed by Chaucer in the Canterbury Tales.

> For gold in Phisik is a cordial,
> Therefore he lovede gold in special!

At that time gold was highly estimated as a remedial agent, hence, the double meaning of the doctor's enthusiasm for collecting gold.

The Arabian caliph Nasr, when saved the necessity of being cut for stone, presented to his physician, Abu Nasr, a fee of about $60,000 besides many rich presents.[25] It is apparent that he who found the gift of life such a boon did not share the philosophy of Seneca (ref. no. 6), who said that life would not be accepted if it were offered to such as knew it. Gabriel Bachtislua was paid by his caliph at the rate of about $5000 per month, and received nearly $6250 besides robes of honor each New Year's day. On one occasion he is said to have received about $125,000 as a single fee.[25]

The Emperor Frederick II recognized the excellence of the medical school at Salerno to such an extent that he placed within its jurisdiction the governance of all medical practice in the kingdom of Naples. Upon completion of the eight years study leading to a master's degree, whereby he might practice medicine, the candidate's oath included a clause that he would give gratuitous attention to the poor, and would not share in the profits of the apothecaries (ref. no. 26, p. 277).

Peter of Abano, who practiced in Padua in the thirteenth century, stated that his salary as a teacher was 500 pounds a month. This picturesque Peter of Abano was one of the most famous philosophers of his age. It is said that he would not attend the sick under 150 florins a day, and that he demanded from Pope Honorius iv, 400 ducats for each day's attendance. Further account says the Pope promised him a fee of 100 florins, but gave him a 1000 when he had recovered his health. He was suspected of being enabled by magic to make the money he had spent come back into his purse. Equally naïve is the recommendation of Gaicosa contained in a Salernitan treatise of about 1200 A.D. that "patients who show themselves ungrateful to the physician after being cured, may be made to suffer again."[30]

Peter of Aichspalt, Bishop of Basle, was a clerical physician who solicited of Pope Clement v, an archbishopric, for another friend. He cured the Pope of an accidental sickness, and received in return for himself the Electorate of Mayence (ref. no. 2, p. 331).

Military surgery, properly so called, is not mentioned in history till the fourteenth century, but in the ancient chronicles continually there is found allusion to some monk or clerk who accompanied military forces probably in the capacity of physician or barber surgeon, to dress wounds and attend the sick. Certainly the first army surgeons were ecclesiastics, who at that time had a monopoly of the science of medicine. Later when urban and municipal associations gained their freedom from the feudal lord, they desired to be free of church control, and promoted barbers to be subordinate surgeons. Thus in every important town a number of surgeons were given a fixed salary, and agreed to attend the poor and follow to the wars the men furnished by the communes to fight for the lord. In Holland, Italy, Germany as well as in France, these surgeons, educated in monastic schools, were engaged in public service. Among these was Hugh of Lucca, physician at Parma, who was paid a lump sum of 600 livres for a life service. This was the origin of the Stadts Physikus in Germany, and of the salaried physicians and surgeons of France, who could now practice, freed from the control of the church, after having been rivals of the monks for two hundred years. They now formed civil corporations and were granted by the monarchs certain privileges and statutes.[15]

The salaries paid by the other medieval popes[25] to their physicians varied from that of John xxii, 5 to 6 florins a month, to that of Urban vi, 400 florins per annum. Pedro Pintor, physician to Alexander vi, received a 100 gold ducats. Matteo Curti had a salary of 100 gold scudi from Julius iii. Taddeo Alderotti, a contemporary of Dante, and teacher in the University of Bologna, was regarded as the first citizen of Bologna and as a public benefactor exempt from the payment of taxes. He acquired wealth and is reputed to have charged Pope Honorius iv, 200 florins a day, besides a gratification of 6000 florins. These fees may not sound extravagant, but in addition they had many privileges, received valuable presents, lived at the Pope's expense and used his servants and carriages. Those who chose to take orders were sure of valuable preferment (ref. no. 17, p. 105).

That even royal patients neglected to pay their physicians, was the bitter plaint of Henri de Mondeville[25] one of the surgeons to Philip le Bel of France in the fourteenth century. "I have not met with any man rich enough, or rather honest enough whatever were his station in life, ecclesiastic or otherwise, to be willing to pay that which he had promised, without compulsion or pressure." His bitter experience is revealed in his emphatic recommendation to surgeons never to undertake treatment without a clear understanding as to the fee. In true continental fashion he insists that the surgeon should begin by asking twice as much as he is willing to receive, and also advises others, "never dine with a patient who is in your debt, but get your dinner a an inn, otherwise he will deduct his hospitality from your fee."

Arpad Gerster says[12] that in those days there was neither emolument nor honor in surgery, and yet this exceptional man, de Mondeville, devoted his life exclusively to the despised profession. In speaking of preventive treatment, de Mondeville says:

> Therefore it appears that the treatment that preserves from future malady is of greater utility to the patient than all other treatment, but it is useless and prejudicial to the surgeon as it impedes the advent of the disease, the cure of which would bring him profit. We must not therefore apply preventive measures except to the following five kinds of men.
>
> 1st, to the truly poor, for the love of God. From the middling poor however it is permissible to accept chickens, geese and capons.
>
> 2nd, to personal friends from whom we would not take any fixed payment or counted money; we may however receive from some friends victuals or jewels, a piece of cloth or plate in sign of old friendship, rather than as a remuneration for treatment. But as it is not seemly for us to say this, should mention be made of a salary, price or money, our servants ought to see to it saying, without our knowledge, as it were, and behind our back, "Hush! my master will have none of that, but you ought to deal courteously with him as far as to offer him a cup of silver or something similar, although I am pretty certain that he won't accept it." And by this cleverness, a good servant may succeed in getting more than the master by his operation. Likewise if the surgeon employ a horse in visiting, on account of the horse, pay ought to be double.
>
> 3rd, to those whom you have found to be grateful after the cure is finished. It would not be decent to deceive these, the poor, and one's friends.
>
> 4th, Prevention is to be applied to people who are bad payers, to whom however we do not dare to refuse treatment, our liege lords, their families, chamberlains, justices and lawyers. The longer be the treament of these persons, the greater our loss; therefore let us hasten their cases as much as possible by using the very best remedies.
>
> 5th, We owe preventive treatment to those who pay us in full and in advance. To all others we do not apply, nor owe we, preventive treatment, as they are the avaricious and all those who prefer money to their own body's welfare, preferring to suffer in body, rather than in purse. Furthermore we are not bound to use prevention in the case of those who pay after the case is finished, and according to the trouble expended on them. If these are cured rapidly, they pay inadequately. If the cure is prolonged they pay much more. Let us administer them feeble medicines of slow action in the hope that their fee may be pro rata, proportionate to the time employed.

Yet this rare soul was far from mercenary for Sir William Osler[17] quotes thus his quaint philosophy, full flavored with humanity and truth. "If you have operated conscientiously upon the rich for a proper fee and upon the poor for charity, you need not play the monk nor make pilgrimages for your soul."

The loquacious Benvenuto Cellini[9] in speaking of a Maestro Giacomo da Carpi, (one of the first to use mercury in the treatment of syphilis) says,

> he undertook the most desperate cases of the so-called French disease. When therefore Maestro Giacomo had made his talents known, he professed to work miracles in the treatment of such cases by means of certain fumigations but he only undertook a cure after stipulating for his fees, which he reckoned not by tens but by hundreds of crowns. The Pope would fain have had him in his service, but he replied that he would not take service with anybody in the world, and that whoso had need of him might come to seek him out. He was a man of great sagacity and did wisely to get out of Rome for not many months afterwards all the patients he had treated grew so ill that they were a hundred times worse off than before he came. He would certainly have been murdered if he had remained.

Francesco da Norcia, physician to three popes, treated Benvenuto for a severe illness over a considerable period of time "during which," Benvenuto relates, "there came from my stomach a hairy worm a quarter of a cubit in length. The hairs were long and the worm was very ugly, speckled of divers colors, green, black and red." In dismissing the patient, his physician said, "when you are quite recovered, I beg you to make me a madonna with your own hand, and I will pay my devotions to it for your sake." A madonna by Cellini was no inconsiderable fee.

Bernal,[4] intrepid physician on the first voyage of Christopher Columbus, was paid at the rate of 17 cents a day, but the fee of Marco, the surgeon, is not disclosed.

The salary of Vesalius at Pisa was $1000, equal according to Garrison, to $8000 at present day values (ref. no. 1, p. 223).

King Charles II of England was guilty of base ingratitude to his physician Sir Edmund King. The monarch being seized with an apoplectic fit in the physician's presence, the latter promptly bled him without sending for another physician. So contrary was this to medical regulations of the court that it was thought a regular pardon would be required. But since the king was thereby relieved, the Privy Council granted the physician a thousand pounds, which obligation however, was never paid by either Privy Council or king.[16] Dr. Peter Chamberlen stood in a similar case, physician to Queen Anne, and a member of the great family[1] of physicians to whom we owe the Chamberlen forceps. "I have served these many years the King and Queen by special Commands, and in some especiall services receiving only one Reward and a Diamant Ring from her Majestie, but not any stipend at all from either," he notes with bitterness. "I have served the commonwealth now 27 years, toyling both early and late, not without the frequent hazard of my life. I have spent my Youth and Industry for Food and Raiment, never receiving any Publick Encouragement or Gratuity, but to be valued beyond my Condition or Demerit in Taxes."

And further he sums up the ingratitude of the public which he serves.

> To prevent both discontent on the one side and dishonesty on the other, I resolve to afford my Labours to none but such as trust me with their money before I trust them with my Art. The Draper is not bound to find Cloth for all the naked because he has enough in his shop, nor yet to afford it at the Buyers' price. The Lawyer is not obliged to spend his voice and spirits for all the Injured in Forma Pauperis because he pleads well and shall be heard.
>
> Acts of Charitie are more due from Kindred than from Strangers. When a Husband of sufficient means shall not think his Wife nor Child's life worth 10 li, I am not bound to bestow that on them which is of more value. I could instance many such kind Husbands, and of late one, who valued his word at 500 li but the danger of his Wife not above 5 li, and that in question of cavelling if need had required it. In summe, I am wholly tired out with the injuries, vexations and losses of the business.

Not all royal physicians were so poorly recompensed. Fernel, physician to Catharine de Medici, was paid 10,000 écus when her long desired pregnancy was determined, and when couched, as much again with a buffet of silver. This she did at each accouchment.[7]

Ambroise Paré was surgeon to four kings and during his long life had experiences varied and vivid. Paget relates[20] that during the reign of Henry II Paré joined the army as a follower of Colonel Montejan, having neither rank, recognition nor regular payment. His fees make up in romance for their irregularity; a cask of wine, 50 double ducats, a horse, a diamond, a collection of crowns and half crowns from the ranks, and "other honorable presents of great value;" from the king himself 300 crowns and a promise that the king would never let him be in want, and a soldier once offered him a bag of gold. The king's favors were granted after Paré had been smuggled into Metz in 1552 and had remained to treat the soldiers until the end of the siege.

Sworn royal physicians, charged to report in all legal trials, were established in the communes and cities of France by several kings, including Henry IV and Louis XV. This establishment, says Fodere, did not do all the good it promised because it was stricken from its birth with a mortal disease, the venality of officers. He hoped however to see a similar institution founded free from this reproach (ref. no. 26, p. 470).

Louis XIV showed himself deserving of the title the "Grand Monarch" in his treatment of his many doctors.[25] Reducing the amounts for convenience to our own standards on the basis of 5 livres to the dollar, he paid Clement $2000 for services at the birth of the Duke of Burgundy. An operation for fistula to which he was subjected in 1686 cost him or his people an equivalent of $200,000. Felix the operator received $60,000 and a landed estate. Two years earlier the same surgeon was paid by the king a fee of $20,000 and six years later, he was granted a patent of nobility. Returning to the fistula operation Bessieres, who assisted Felix, received $8000. The physicians D'Aquin and Fagon received $20,000 and $16,000 respectively for looking on, while the four apothecaries each received $2400, and Felix's apprentice Laraye was given 400 pistoles, or a trifle of $800.

The payment of a life annuity for a successful operation was a medieval custom still in vogue during the seventeenth century. Weiman records an annuity of 30 pounds per annum from one patient (ref. no. 11, p. 286). Quarin was given an annuity of $10,000 per annum and was made a baron for his consultation with Joseph II of Germany (ref. no. 11, p. 397).

Empress Catharine of Russia was royally munificent to Dimsdale[25] whom she brought from England in 1762 to introduce inoculation against smallpox. For his services he received a fee of 10,000 pounds, travelling expenses 2000 pounds, a portrait of the empress, sundry titles and a life pension of 500 pounds a year.

The eminent John Hunter[19] frequently replied to patients who asked his fee, "Why that you must determine yourself. You are the best judge of your own circumstances, and it is far from my wish to deprive you of any of the comforts of life." A terse note to his brother reflects his personality. "Dear Brother," it reads, "The bearer is very desirous of having your opinion. I do not know his case. He has no money, and you do not want any, so that you are well met. Ever Yours, John Hunter" (ref. no. 11, p. 396). Yet this generous doctor has voiced in a human way, the momentary irritation that comes to all of us when interrupted in the pursuit of a hobby, "I must go and earn this damned guinea, or I shall be sure to want it tomorrow."[19]

In the year 1792 Dr. Willis,[25] who had charge of George III in his periods of derangement, was called to Lisbon to attend the Queen of Portugal, also mentally deranged. Terms agreed upon included a salary of 1000 pounds a month, travelling expenses, a table for himself and suite, and 20,000 pounds if he succeeded in curing the queen. He was received with honors usually accorded royalty.

The regular fee of Professor Botkin, for many years trusted physician of Alexander III and the Czarina, is said to have been 100 rubles (about $50) for a consultation at his own home and five times that amount for a residence call within easy distance. Dr. Freyer was paid 10,000 pounds for attending a native Indian prince in London. Morrell Mackenzie was given 13,000 pounds for attendance on the Emperor Frederick. Charcot's honorarium for watching for a week at the bedside of the late Emperor of Brazil amounted to several thousand pounds.[25]

Sir Andrew Clark once refused a fee of 5000 pounds rather than leave an impecunious patient requiring his attention. He returned a check for 6000 pounds for a consultation in Cannes, stipulating that 750 pounds was enough for a week's absence from London.[25] He told Sir William Osler[18] that he had striven ten years for bread, ten years for bread and butter and twenty years for cakes and ale.

The beloved Osler had a kindly memory of his own "bread" earning years and he liked to exhibit to his students his first fee record, "Speck in cornea, 50¢." He also enjoyed telling of serving for a month as locum tenens for Dr. Charles O'Reilly of Hamilton, for which he received "$25 and a pair of old fashoned elastic sided boots which had proved too small for Charlie O'Reilly" (ref. no. 101, p. 120).

In conclusion, the attitude of the average patient in matters mercenary is epitomized somewhat cynically in the lines accompanying an old Dutch woodcut.

When the sick man lies abed distraught with pain
And dismal Death is clutching at his throat,
He likens me to GOD and all his house
Kneel down and do me reverence.

When easier lies his head and icy death
Removes his hand and warm the blood rebounds,
He blesses me as Messenger of God,
And Holy ANGEL from ethereal high.

But when the full and rosy touch of life
Bestirs his flesh and puts his soul to sleep,
He greets me as a MAN, though one of might
And versed in all the wisdom of the world.

And then at last when recompense is asked,
He passeth me in dread, for lo, to him I stand
A DEVIL, horned from out the lowest depths.

The attitude of the physician toward fees is beautifully expressed in the description of the qualities of a surgeon by Guy de Chauliac,[5] known as the Father of Surgery, who lived in the fourteenth century.

> Let the surgeon be bold in all sure things and fearful in dangerous things; let him avoid all faulty treatments and practices. He ought to be gracious to the sick, considerate to his associates, cautious in his prognostications. Let him be modest, dignified, gentle, pitiful and merciful, not covetous nor an extortionist of money; but rather let his reward be according to his work, to the means of the patient, to the quality of the issue, and to his own dignity.

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# EDITORIAL

A very valuable contribution to the history of the study of anatomy in the Middle Ages has recently been published by the Carnegie Institution.* Its author, Dr. George W. Corner, has succeeded in clearing up some of the obscure points in regard to the history of the Salernian school and while disposing of much of its legendary history has unveiled some new facts of great importance to the early history of anatomy. The old legend tracing the founding of the medical school of Salernum to four masters, a Greek, a Jew, an Arab, and an Italian, probably arose from the following circumstances: (1) Salernum was a sort of outpost of the Byzantine Empire and as such the common language of its inhabitants was Greek; (2) it contained many Jewish inhabitants; (3) the southern part of Italy was subject to frequent Saracenic raids; (4) in the Benedictine monasteries Latin was spoken and read. These four linguistic elements Charles and Dorothea Singer thought were possibly symbolized in the legend of the Four Masters and Professor Corner agrees with them as to the plausibility of this explanation. Before 1050 all medical as well as other learning centered in the Benedictine monasteries. The monks within them wrote in the Latin tongue in a peculiar script, known as Beneventan, from the central Benedictine monastery at Benevento. Corner says that some 600 of such manuscripts have survived, of which 14 are medical. These are Latin translations of Greek texts and from internal evidence were probably transcriptions of translations made as early as the sixth century, and as the later scribes had not the Greek originals to guide them the Latin versions became more and more corrupt as they passed on. This handful of works with the addition of a few manuscripts found elsewhere, some antidotaries, charms and magical texts are "all we have to inform us what sort of medical literature was current during the later Dark Ages." Corner makes the interesting point that as far as the evidence goes, anatomy did not exist: "No anatomical work of Hippocrates, Aristotle, Galen, or the lesser classical biologists is known to have been in use in Europe before the twelfth century."

Though Sudhoff speaks of an Early Salernitan period, before 1070, Corner is inclined to disregard it and thinks that until that date Salernum was probably merely a health resort but undistinguished by any special medical science beyond the rest of Europe. With the advent of Constantine the African, in 1070, begins the Middle or High Salernitan period, marked by the introduction of Oriental learning among its teachers. Corner discusses the various theories as to the biography of Constantine. All that is positively known is that, as his surname implies he was a native of Carthage who lived as a monk in the Abbey of Monte Cassino, and that he wrote a number of medical works, all of which were translations of Greek, Latin or Arabic texts, made from the Arabic into Latin, thus as Sudhoff, quoted by Corner, says, giving the West "a great mass of important classical learning, in readable Latin, at a time when everything was ripe." Professor Corner gives a summary of the most important of Constantine's writings and then discusses the various Salernitan medical works which were written by other teachers shortly after their appearance. It is only in recent years that critical study has unveiled the mystery which surrounds the authorship of many of the Salernitan texts. Sudhoff, Singer and others have gradually elucidated much that their predecessors De Renzi, Henschel and their contemporaries could not explain. Thus none of the early students had access to an original manuscript of the first Salernitan work on anatomy, the Anatomia Cophonis, a work which went through a number of printed editions. There is now known an original manuscript, dating probably from 1150, and it is at present in Munich. There are two fourteenth century manuscripts in the Bibliothèque Nationale. From these three manuscripts Professor Corner has reconstructed a text of the Anatomia Cophonis, which, as he says, "provides for the first time in 750 years a text which is completely intelligible and probably represents the sense of the original more closely than any extant version." He also furnishes an English translation of this reconstructed text. Professor Corner has proved that Copho had no claim to the credit of writing this little book on anatomy. Its wrongful attribution to him began as late as 1531 through the printing of the Anatomia immediately after a medical text ascribed to him. This mistake as to authorship was never suspected until Sudhoff questioned it. In an amusing paragraph Corner shows that not only did Copho not write the Anatomia, so long and generally attributed to him, but that there is no medical text of which he is known to be the author. His name is mentioned in some Salernitan writers as a teacher at Salernum, and that is all that is definitely known about him.

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* Anatomical Texts of the Eastern Middle Ages, a Study in the Transmission of Culture, with a Revised Latin Text of "Anatomia Cophonis" and Translations of Four Texts, by George W. Corner, M.D., Professor of Anatomy in the University of Rochester.

Professor Corner gives an interesting account of the "Demonstratio Salernitana," or second Salernitan demonstration of anatomy. This manuscript is the text of a public discourse or demonstration of anatomy on the pig. Its material is largely drawn from the writings of Constantine, the African. The author is unknown but it was probably, Corner thinks, written as a criticism of the earlier work. He also gives a description of the "Anatomia Mauri," or anatomical text of Magister Maurus, who was the teacher of Aegidius Corbolensis at Salernum in the latter half of the twelfth century, and of the "Anatomia Ricardi" and the "Anatomia Magistri Nicolai." Lastly Corner describes the "Anatomia Vivorum" of Richard the Englishman, and presents the problem as to whether he was or was not the same man as Ricardi the Salernitan whose "Anatomia Ricardi" he has previously studied.

Professor Corner's work is a splendid contribution to an obscure but fascinating department of medical history. It manifests not only the erudition of the author but his quick insight and deep penetration into scholastic medieval tangles.

FRANCIS R. PACKARD.

# BOOK REVIEWS

Opuscula Selecta Neerlandicorum de Arte Medica. Fasciculus Sextus quem Curatores Miscellaneorum quae vocantur. Sylvius, Swammerdam, de Graaf, Schroeder-van der Kolk. Nederlandsch Tijdschrift voor Geneeskunde. Collegerunt et ediderunt. Amstelodami Societatis, 1927.

The sixth volume of this fine collection of Dutch medical classics contains the weighty names of Franciscus Sylvius, Swammerdam, de Graaf and Schroeder van der Kolk. To students of Dutch history it is perhaps significant that three of these four classics were published within a space of twenty-eight years in the seventeenth century. Following established custom, the original work is given on the left hand pages and a translation on the right; if the original is in a foreign language the translation is in Dutch; if the original is in Dutch, the translation is in English.

Sylvius is here represented by his inaugural address "De Homine Cognitione," as Professor of the Practice of Medicine in the Leyden Medical School, 1658. As one might expect with such a topic and occasion, philosophizing occupies a larger rôle than usual for one whose bent was that of physiological exposition.

Jan Swammerdam's "Treatise on Respiration and The Function of the Lungs" is reprinted from the van Gaasbeeck Leiden edition of 1667. While this is, as I recall, the same subject as his inaugural dissertation at Leyden, he speaks of it as "primitias nimirum mei in medicina doctoratus" and addresses it to Illustrissimo Viro, D. D. Thevenot. Though the microscope had already permitted him to be the first to see and describe the red blood corpuscle (1658, published by Boerhaave in 1738), chemistry had not advanced sufficiently to permit the solution of the riddle of the nature of respiration, and the treatise is not of first importance.

The third reprint, de Graaf's treatise on the nature and function of the pancreatic juice is reprinted with two title pages, in Latin, from the Hackius' press at Leyden in 1671 and in Dutch from Abraham's press at Amsterdam in 1686. (It is unfortunate that the first edition (Hackius, 1663) is not given, published when de Graaf was a student of twenty-three at Leyden under Sylvius.) Here one can read of his ingenious method of collecting the pancreatic juice from the living dog (not to be repeated until modern times by Claude Bernard), or if an English version is preferred, it is to be found in Foster's History of Physiology page 154. The splendid illustrations show Edelinck's and another portrait of the author, who died at thirty-six, also a title-page of the author surrounded by students and a patient, doing a dissection of the pancreas, with the experimental animals in the foreground. Other plates show details of his work on the pancreas and salivary glands.

Schroeder van der Kolk's "Address on the Neglect of Care Required for the Assuagement of the Fate of the Insane" (Utrecht, 1838), on the occasion of the transfer of the rectoral dignity at Utrecht, may be looked upon as the inauguration in Holland of the modern method of treating the insane. Though spoken originally in Latin, the contemporary Dutch and later English translations are here given. Apparently, though Pinel's pioneer work in Paris had long since produced great improvements in France, England, Germany and Italy, in Holland it was slow in making headway, though it must be admitted that since that time in no country has it reached a finer development than in Holland.

A table of contents of the six volumes of the Opuscula that have thus far appeared now follows:

Volume 1

Erasmus, Desiderius. Encomium artis medicae. (De lof der geneeskunde.)

Van Leeuwenhoek. Antoni. Den waaragtigen omloop des Bloeds, als mede dat de Arterien en Venae gecontinueerde Bloedvaten zijn, klaar voor de oogen gestelt.

Swammerdam, Jan. Proefnemingen van de particuliere bewegingen der spieren van den

Kikvorsch, die in het gemeen op alle de bewegingen der spieren in de menschen en beesten toegepast worden.

Boerhaave, Hermannus. De usu ratiocinii mechanici in medicina.
(Het nut der mechanistische methode in de geneeskunde.)

Gaubius, Hieronymus David. Oratio inauguralis qua ostenditur chemiam artibus academicis jure esse inserendam.
(Inaugureele rede, waarin wordt aangetoond, dat de scheikunde met recht een plaats verdient onder de akademische wetenschappen.)

Donders, F. C. De harmonie van het dierlijke leven de openbaring van wetten.

### Volume II

Gamperi, Petri. De Oculorum Fabrica et Morbis.

### Volume III

Vesalius, Andreas, Brief . . . behelzende de aanwending van het decoct van Chynawortel.

### Volume IV

Auletius, Alardus. Monitio de reformanda praxi medica. (Verzoekschrift aangaande de hervorming der geneeskundige praktijk.)

Walaeus, Johannis. Epistolae duae de motu chyli et sanguinis. (Twee brieven van de beweginge des chyls ende des bloeds.)

de Graaf, Regenerus. De mulierum organis generationi inservientibus tractatus novus. (Een nieuw ontwerp van de ledematen der vrouwen tot de voortteelinge dienstig.)

de Fremery, Nicolaus Cornelius, De mutationibus figurae pelvis, praesertim iis, quae ex ossium emollitione oriuntur. (De veranderingen der bekkengedaante, vooral ten gevolge van beenverweeking.)

Van Deen, I. Over de voorste en achterste strengen van het ruggemerg.

### Volume V

de Back, Jacobus. Dissertatio de corde. (Verhaal van 't hart.)

de Back, Jacobus. Dissertatio de corde. Editio altera (Aanteekeningen). (Verhandeling over het hart. Tweede druk (Aanteekeningen.)

Bootius, Arnoldus. Observationes Medicae de affectibus omissis. (Geneeskundige waarnemingen over vergeten aandoeningen.)

Donders, F. C. Blik op de stofwisseling van het epitellurische leven als bron der eigene warmte van planten en dieren. (Notes on metabolism of life on the earth as a source of natural heat of plants and animals.)

### Volume VI

Deleboe, F., Sylvius. Oratio inauguralis de Hominis Cognitione.

Swammerdam, J. Tractatus physico-anatomicomedicus de Respiratione usuque pulmonum.

de Graaf, R. Tractatus anatomico-medicus de Succi Pancreatici natura et usu.

Van der Kolk, J. L. C. Schroeder Redevoering over de verwaarloozing der vereischte zorg ter leniging van het (ongelukkig) lot der krankzinnigen en ter genezing derzelve in ons vaderland.

Social Factors in Medical Progress. By Bernhard J. Stern, ph.d. New York, Columbia University Press, 1927.

This book, one of the series of *Social Studies* published under the auspices of Cornell University, is a study of the factors involved in the resistance to innovations or changes in culture as evidenced in the reception of new discoveries or inventions in medicine, and of the extent to which such discoveries are dependent on the individual to whom they are accredited, or whether they would have come about without their particular work. After a very penetrating and lucid discussion of the factors which operate to retard the diffusion of innovations in general, such as vested interests, the power of tradition, reverence for authority, fear of the unknown etc., there is an equally good chapter on Conservatism in Medicine. Stern's summary at the close of this chapter expresses the thesis which the chapters which follow support, "The present status of medicine as a science encourages conservatism. The large number of conflicting theories and methods which confront the medical man who is not equipped to verify or refute their value, force him to have recourse to authority. Authorities in medicine have, in the main, been conservative and have been prone to oppose innovations that implicate their economic and psychological vested interests and demand a reorientation of their habits of thought and practice. Medical men are also deterred from accepting innovations by religious, political and economic influences and by the propaganda of those whose vested interests are endangered. The reception of a discovery is often complicated by cliques within the profession and personality conflicts. Medical education lagging behind advanced practice, often retards change. The masses yearning for relief and cure, are undiscriminating in their support of medical innovations, a fact which has intensified the conservatism of the medical profession." The Author then studies successively the opposition to dissection, chiefly based on religious grounds; the opposition to Harvey's discovery, largely due to respect for authority, power of tradition, ignorance of the value of the experimental method and of vivisection. The same factors that were opposed to Harvey delayed the reception of Auerbrugger's theory of percussion. Vested interests and fear of physical danger or discomfort fought the recognition of the value of vaccination, whereas the opposition to Semmelweiss' doctrine of the contagiousness of puerperal fever was largely maintained by personal animosity backed by a self-defense reaction on the part of the surgeons who objected to the charge that they were the carriers of the disease. Pasteur's discoveries were opposed for many reasons among which Stern emphasizes first the psychological ones; the tendency to suffuse an habitual mode of activity with an "emotional tone"; the persistence of habit reactions due to the difficulty of reconditioning behavior patterns, and the use of social pressure to exact conformity. The fact that Pasteur was a chemist and not a physician militated against him, and absolute ignorance on the part of the bulk of the medical profession of the basic facts on which the germ theory was based were strong elements in the opposition. One factor we cannot help feeling is overstressed by the Author, namely, that Pasteur roused opposition by his combativeness and "cocksureness." We believe the latter epithet is not warranted by what we know of Pasteur as revealed in his own writings and the ample biographical material concerning him. He had the sureness of statement based on his knowledge that his statements had been rendered unassailable by his own careful and frequently tested proofs. The opposition to Lister's methods was based on a great variety of reasons, many psychological, but the most important the power of authority, vested interests, ignorance, and conflict with other theories.

In his discussion upon the dependence of medical discoveries on the state of existing knowledge Stern brings forth the somewhat obvious fact that the great discoveries in medicine have been preceded by and are dependent upon a number of antecedent discoveries or investigations. Thus the work of many predecessors is an essential basis on which most "key" discoveries depend. The book concludes with a list of some of the multiple discoveries and inventions in the history of medicine.

Stern's book is a most thoughtful and valuable contribution to the philosophic side of medical history. His conclusions are in the main well supported by adequate proof and show thorough study and mastery of the materials on which they are based.

FRANCIS R. PACKARD.

SIR WILLIAM OSLER MEMORIAL VOLUME; APPRECIATIONS AND REMINISCENCES, WITH BIBLIOGRAPHIES. (Bulletin No. IX of the International Association of Medical Museums and Journal of Technical Methods.) Second impression, edited by Maude E. Abbott, M.D. Privately issued at 836 University St., Montreal, Canada. 634 pp. 1926.

The International Association of Medical Museums owes much of its success to the aid and active cooperation of Osler in its early years. At its Annual Meeting in 1920 the Association determined to show its gratitude in a practical way by arranging for the compilation and publication of an Osler Memorial Volume. The task was confided to an Editorial Committee, with Dr. Maude E. Abbott, of Montreal, as Managing Editor. In 1926 the work appeared, and now, one year later it has been necessary to issue a second impression. Advantage has been taken of the opportunity to improve and make additions to the book. Thus the delightful picture by Sargent, of "The Four Doctors" (Osler, Welch, Halsted and Kelly), has been reproduced in color, thereby adding greatly to its charm. Dr. C. K. Winne has contributed two most excellent photographs of Osler in 1902, 1903. In one he is quizzing a student at one of his clinics, in the other he is at a desk in the dispensary clinic at Johns Hopkins Hospital. Both are most characteristic and are valuable addenda to the history of his life in

Baltimore. Another photograph, also contributed by Winne shows Osler surrounded by the graduating class of 1901 at Johns Hopkins. There are also new articles by Drs. J. B. McConnell, G. G. Finley, Harry Marshall, L. G. Rowntree, A. M. Foshay, Kate Campbell Mead and W. Grant Stewart. Dr. L. Brown writes on "Osler and Trudeau" and Marian Osborne contributes a delightful ode. The Memorial Volume contains so many distinct articles that it does not lend itself to an analytic review. They are prefaced by a "Foreword" by W. H. Welch and a "Proem" by the late Sir Clifford Allbutt, two of Osler's greatest and closest friends, and a beautiful short poem by one of his most loved disciples, W. S. Thayer. The articles written *in memoriam* by those who had had the opportunity to view one or more of the many facets of Osler's brilliant career are of the greatest value to anyone who desires to study the life of probably the most widely known medical man of his day, a life that influenced profoundly the course of medicine in Canada, the United States and England, and indirectly exerted its influence on medicine in many other countries.

Osler was even more than a great physician. In bibliography, which he termed his recreation, he achieved the highest honors and to him more than to any other one person is due the stimulation which has induced so many physicians of late to take up the study of books and their authors. As a classical scholar he was so highly regarded by those who have devoted themselves to such studies, as to be elected to one of the highest honors in their gift, the presidency of the British Classical Association. In the pages of the Memorial Volume will be found many tributes to these non-professional attainments of a truly great scholar.

The book has many well chosen pictures which add greatly to its value. Last but not least it contains a splendid bibliography of Osler's writings.

In 1919, in honor of his seventieth birthday, a large two volume book composed of contributions written by some 150 of his friends was published, a splendid and well-deserved tribute of appreciation of his services. In 1925 the great biography by his friend, Harvey Cushing, was hailed with acclaim as worthy of its subject. Now the present large volume completes the trilogy. The Editorial Committee, and particularly the Managing Editor Dr. Maude E. Abbott, have fulfilled their onerous task in the most adequate manner. To them are due the thanks of the profession for thus filling out the picture of the life of its great leader.

FRANCIS R. PACKARD.

THE LIFE AND WORK OF SIR PATRICK MANSON. By Philip H. Manson-Bahr, D.S.O., M.D., F.R.C.P., and A. Alcock, C.I.E., LL.D. (Aberd.), F.R.S., Lt. Col. I.M.S. (retired). New York, William Wood & Company, 1927.

The life of a pathfinder must always be interesting if properly told and Sir Patrick Manson deserves this description for he was a leader in the early days of the modern study of tropical diseases. The reviewer has two strong impressions of the subject of this biography, one of the man himself and the other of his written word. The latter came first and the memory of the satisfaction given by the first reading of his work on Tropical Diseases is present still. Here was a writer who described diseases which the reader had never seen but which were brought before him in such a remarkable way that they seemed familiar. Of the man himself there was an impression of strength and individuality so that every one who did not know him would ask at once "Who is that man?"

He started life with the best of all endowments, Scottish parents, and early showed a bent towards the investigation of "the insides of animals" and the parasites they harbored. Despite this he was entered as an engineer apprentice in iron works but an illness of some duration made an end to this and he gave up engineering for medicine, graduating from the University of Aberdeen in 1865.

Soon after graduation he obtained an appointment in the Chinese Service at Takao in Formosa where his principal official duty was to act as medical officer of the port. He was blessed with intelligent curiosity and at once began investigations in tropical diseases, especially elephantiasis and leprosy. However, his stay in Formosa was not of long duration. He next went to Amoy, in China, where he spent thirteen years. His biographers have found comparatively little on record of these years except that which concerns his professional work. This was both surgical and medical, and one of the first advances which he made was a successful operation for the removal of an elephantoid tumor.

At that time the causation of elephantiasis was unknown.

Naturally the conditions, particularly with reference to hospital accommodations, were not very encouraging, but we find Manson making the best of them and succeeding to a remarkable degree. Many of his earlier triumphs were in surgery in which he described himself as "an indifferent surgeon but a good carpenter." He soon became particularly interested in leprosy, malaria, and beriberi. Sprue was another malady which interested him greatly. After some years in Amoy he returned to England and while there learned about the first work being done on filarial infection and after his return he devoted himself particularly to the solution of many of the problems connected with filarial disease. He did much to prove the association of filaria with certain forms of elephantiasis. The story of filaria and filariasis is a most interesting chapter.

The story of the gradual development of our knowledge in this field is very well told by the biographers and also Manson's association with the working out of the method of transmission of malaria. He had much to do with the work of Ross and was in close touch with the various stages of his investigations. An interesting quotation from one of Manson's addresses is that in which he claimed credit for himself "not so much for having formulated the mosquito-malaria theory as for having discovered Ronald Ross." Later he had much to do with the establishment of the College of Medicine in Hong Kong and was its first Dean.

Sometime after returning from China, he began to practice in London, and, fortunately, was appointed physician to the Seamen's Hospital Society which gave him hospital beds close to the docks where much of the shipping from the tropics comes. From this time on one finds him in constant association with the development of the study of tropical diseases, of extending the opportunities for education in the knowledge of them and further investigations, particularly with regard to filarial infections.

To mention all the subjects in which he was interested would be merely to give a catalogue of many of the developments in tropical medicine in recent years. He had much to do with the organization and success of the London School of Tropical Medicine.

Throughout his life he was a martyr to gout, of which he had many severe attacks. This never seemed to interfere with his work or activity. The predominant feeling that one has in reading his life is the great energy and keenness which he always displayed and the ability to make the best of what might have been regarded as surroundings not likely to encourage scientific development. By many he has been given the title of Father of Tropical Medicine. He emphasized the truth that the roots of medicine are in biology. The biographers are to be congratulated on having given a sympathetic and interesting account of Manson's life. The younger generation of practitioners can follow here the difficulties which accompanied the study of certain tropical diseases and how they were overcome.

THOMAS McCRAE.

INTRODUCTION TO THE HISTORY OF SCIENCE. Vol. I, from Homer to Omar Khayyam. By George Sarton, Associate in the History of Science, Carnegie Institution, Washington, D. C. Published for the Carnegie Institution. Baltimore, Williams and Wilkins Company, 1927.

In the introductory chapter to this truly magnificent volume Dr. Sarton, the author, who has already done so much for the history of science by his able editorship of *Isis*, states that his purpose is to explain briefly, yet as completely as possible, "the development of science, that is of *systematized positive knowledge*." He is careful to state that his work will contain but few references to political or economic history, nor to the history of art, not because of any lack of appreciation of their great importance but because there already exist many excellent books dealing with them. On the other hand he does devote much space to the history of religion because we cannot understand the intellectual background of a people without a study of its religious problems and ideas. This is obvious to the most superficial observer if he considers the way in which medieval thought was completely dominated by theological conceptions; "Theology was at once the core of science and the prop of religion."

Although music is now more generally considered as an art than a science yet Sarton finds it is necessary to incorporate some material concerning its history, recalling that it was one of the main divisions of the quadrivium which dominated medieval education. Much importance is also due to the early history of philology.

Sarton points to the discovery of the logical structure of language as a scientific discovery just as much as the discovery of the anatomical structure of the body. The medieval thinkers were wont to attach excessive significance to words to the neglect of concrete facts and hence the barrenness of their labor. This book, as its author states, contains the first tolerably complete account of medieval science, and it is a sad contrast to the glorious record of the scientific achievements of the Greeks. Sarton notes the curious fact that although Greek science was transmitted by a few Christian commentators to Syrian and Armenian Christians, and by them to the Moslems, the majority of Christian humanists were so absorbed in Neo-Platonism and theology that they neglected Greek science and failed to transmit its splendid traditions, thereby condemning western civilization to centuries of intellectual darkness. Sarton, after pointing out that too often there is a tendency to discuss the history of medieval science as unworthy of serious study, regarding the "dark ages" as a period of regression and intellectual perversity, states, "If there were no other reason to study medieval science than to find out how ancient science was handed down to us, that reason would be sufficient." He shows how difficult the transmission of scientific knowledge was before the invention of printing, a difficulty greatly enhanced by political and economic factors. He remarks that there was much originality in medieval times, but that it was trammelled by many political, economic and religious restrictions. Though much study has been devoted to medieval theology and art, medieval science has been neglected. While many scholars have studied the meagre aspects of medieval science as revealed by European manuscripts, comparatively little attention has been bestowed on the evidence of real scientific achievements of the Orientals themselves revealed in Greek, Syrian, Persian, Sanskrit, Chinese and Japanese writers. The most valuable original scientific contributions of the period were written in Arabic. From the second half of the eighth century to the end of the eleventh, Arabic was the scientific language of mankind. Thus Sarton sums up: "medievalists have given us an entirely false idea of the scientific thought of the Middle Ages, because of their insistence upon the least progressive elements and of their almost exclusive devotion to western thought, when the greatest achievements were accomplished by Easterns."

Why did the Moslems so far excel the Christians from the eighth to the eleventh century? Sarton answers that the Greek tradition was first stifled by Roman utilitarianism, later by theological expediency, and still later by theological domination, whereas the Persianized Moslems as soon as they came in contact with Greek and Hindu sources of knowledge were fired with enthusiasm and accomplished great things in all the branches of science until halted by "an obscurantism even more tyrannical than that of the West."

Sarton gives a most excellent résumé of the conflict in ideas and methods between scholasticism and science. The cure for scholasticism was experimental science, and it crept forward slowly but surely throughout the Middle Ages towards its ultimate triumph. Sarton shows that though in speaking of scholasticism, we generally think of Christian scholasticism, nevertheless it was a vice of the Jews and Moslems to almost as great a degree as it was of their Christian contemporaries, and Buddhist scholasticism had developed centuries before any of the other forms. The fact that all the various forms of scholasticism are more or less autonomous indicates that scholasticism was a necessary phase of human progress. The history of scholasticism demonstrates conclusively that religion and science must be kept absolutely separate, their intellectual methods being entirely different.

After this most interesting introduction to his subject Sarton proceeds to an explanation of the method he has chosen to carry out his vast undertaking. This first volume of what he so modestly styles an "Introduction to the History of Science" is a chronological survey in the form of cross-sections of civilization for each half century. It will require seven or eight more volumes of the same size to complete the work from the period of Omar Khayyam to the present time. Each chapter is devoted to about half a century, and is divided into subsections dealing with the various branches of science, mathematics, astronomy, medicine, etc. Although this method does not give the history of science consecutively for the different civilizations, as Chinese, Moslem etc., it has the great advantage of showing as the Author desired "the continuity of the gradual building up of science," and it is very easy for the reader to follow the history of any division of the subject if he merely turns to the divisions in the different chapters to which they belong.

It is impossible to present an analytical review of the contents of this invaluable work, invaluable to every student of any branch of history. It presents a complete chronological survey of the progress of civilization throughout the entire world. Thus if we were to take account at any given period, we would find a summary of the scientific and intellectual achievements which were taking place in Greece, India, China, Japan or elsewhere.

Though the summaries are necessarily concise they contain all the essential facts and are accompanied by excellent bibliographies. Very wisely, Sarton does not attempt to furnish a complete bibliography in every instance, contenting himself with indicating the chief editions, commentaries or other important literature, and when necessary stating where a complete bibliography can be found. Any other method could merely have added to the bulk of the book without increasing its usefulness.

The author's services to scientific literature as the editor of *Isis* are so well known and appreciated that it is useless to state that this valuable feature of his work is above praise. His treatment of the different branches of science is most impartial and adequately covers each in turn. The history of medicine which is naturally the part of the book which most concerns our readers is fully treated from every angle. The material for it is gathered from the original sources, carefully collated and admirably commented upon. It is one of the most important contributions to the subject which has been made in recent years. Most writers on medieval history overlook or ignore other scientific activities than those with which they are directly occupied. In this splendid book of reference they can find a guide to all the contemporary intellectual activities of the world at any period of the many centuries covered by it. The profound erudition of the author is coupled with a philosophic insight which enables him to estimate relative values as regards both persons and events. Therefore the work is well-balanced throughout. We may also commend the pleasing way in which the book is written. In a charming paragraph he states that though he may have made accidental errors of omission or commission he does not believe that he has made any "systematic" errors, by which he means those which occur from racial, national, religious, or scientific bias. He "is almost equally interested in every department of science, reads regularly publications in English, French, German, Dutch, and Italian, has friends in many countries and is not prejudiced against any, and in regard to religion is neutral except for a prejudice against irreligious persons, who lack gravity and reverence, or are unable to understand religious feelings they do not share." The pages of his book are proofs of the truth of his statement. He has performed a great work not only for science but in bringing about the brotherhood of science which is so essential at present to peace and progress. There is no trace of chauvinism in his book.

Francis R. Packard.

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